

HONGKONG.

## REPORT OF THE DIRECTOR OF PUBLIC WORKS, FOR THE YEAR 1903.

*Laid before the Legislative Council by Command of  
His Excellency the Officer Administering the Government.*

PUBLIC WORKS OFFICE,  
HONGKONG, March 28th, 1904.

SIR,

I have the honour to forward you my Report upon the work of the Public Works Department during the year 1903.

I have, &c.,

W. CHATHAM,  
*Director of Public Works.*

The Honourable

A. M. THOMSON,

*Acting Colonial Secretary.*

## EXPENDITURE.

1. The amounts voted, as compared with those actually expended by the Department, under the various headings, were as follows:—

	AMOUNTS VOTED.			Actual Expenditure.
	In Estimates.	Supplementary Votes.	Total.	
(1.) Personal Emoluments and Other Charges, .....	\$ 213,849.50	\$ 6,672.21	\$ 220,521.71	\$ 190,121.12
(2.) Annually Recurrent Works,	481,500.00	105,050.00	584,550.00	529,579.98
(3.) Extraordinary Works,.....	911,000.00*	183,058.36	1,094,058.36*	629,831.04†
Total, .....	\$ 1,606,349.50	\$ 292,780.57	\$ 1,899,130.07	\$ 1,349,532.14

Detailed statements of items (2.) and (3.) are given in Appendices A. and B.

Item (1.) shows a large increase (about \$65,000 in the amount voted and \$74,600 in the amount expended) over the corresponding item in 1902, but this is principally accounted for by the fact that Exchange Compensation was for the first time included in the Departmental Estimates and Expenditure instead of, as in former years, in the Vote for "Miscellaneous Services." There were also however some additions to the Staff of the Department.

The principal increases in expenditure under item (2.) occurred in connection with the following:—

Drainage Works Miscellaneous, largely due to training of nullahs, .....	\$ 16,700
Water Works Miscellaneous, principally caused by reconstruction of aqueduct from Tytam West Catchwater and channel alongside catchwater for dry-weather flow of streams, .....	12,600
Miscellaneous Works, .....	13,600
Maintenance of Water Works, City and Hill District, principally due to cleaning out Pokfulam Reservoir, pumping water from Tytam Tuk and additional pumping to High Levels, .....	15,000

\* Exclusive of Vote for Government Piers in connection with Praya Reclamation Works, amounting to \$20,000.

† Exclusive of Expenditure on Praya Reclamation Works and Government Piers.

With regard to item (3.) several works were undertaken which were not contemplated when the Estimates were prepared, thus rendering it impossible to proceed with others which were provided for in the Estimates, and in a number of cases the expenditure fell much below what was anticipated. This was notably the case in connection with the Kowloon Water Works Scheme, owing to the large quantity of inferior rock which had to be excavated from the site of the dam; the Resumption of Insanitary Property, negotiations with regard to which are apt to be somewhat prolonged; the construction of the Law Courts, owing to the difficulty experienced in obtaining a reasonable tender for the work; the construction of the Western Market and Harbour Office, owing to pressure of other work delaying the preparation of the plans, &c.; the works for increasing the supply of water to the Peak, in consequence of the pumping machinery not being received; and the abandonment of the proposal to erect Public Fountains throughout the greater portion of the City.

#### LAND SALES AND SURVEYS.

**2. Land Sales, Extensions, Grants, &c.—**The following tabulated statement gives particulars of these:—

	NO. OF LOTS.		AREA IN SQUARE FEET.		ANNUAL CROWN RENT.		PREMIUM.	
	—	Total.	—	Total.	—	Total.	—	Total.
<i>Sales by Auction.</i>								
Island of Hongkong, ... Kowloon Peninsula, .... New Territory, .....	28 1 7	36	204,997 44,000 89,359	338,356	2,010 252 196	2,458	457,608.00 6,652.00 3,838.00	468,098.00
<i>Possessory Agreements issued.</i>								
Praya Reclamation Lots taken up by Lessees, ...	... 1	25	.....	171,827	...	3,254	Nil.	Nil.
<i>Extensions granted.</i>								
Island of Hongkong, ... Kowloon Peninsula, ....	6 1	7	3,942 84,065	88,007	30 228	258	552.00 7,950.00	8,502.00
<i>Grants on Short Leases.</i>								
Island of Hongkong, ... Kowloon Peninsula, ....	5 3	8	41,516 26,900	68,416	5,505 282	5,787	Nil.	Nil.
<i>Permits to Occupy Land for Short Periods.</i>								
Island of Hongkong, ... Kowloon Peninsula, .... New Territory, .....	42 14 9	65	.....	.....	915* 320* 41*	1,276*	Nil.	Nil.
<i>Grants on Nominal Terms.</i>								
Island of Hongkong, ... Kowloon Peninsula, ....	5 1	6	132,011 67,725	199,736	3 1	4	Nil.	Nil.
<i>Re-adjustments of Boundaries.</i>								
Island of Hongkong, ... Kowloon Peninsula, ....	7 12	19	5,420 13,016	18,436	27 643	670	637.66 3,002.00	3,639.66
<i>Conversions of Short Leases into 75 Years Leases.</i>								
Island of Hongkong, ... Kowloon Peninsula, ....	108 1	109	63,148 1,603	64,751	392 4	396	8,232.20 551.00	8,783.20
<i>Conversions of Garden Lots into Inland Lots.</i>								
Kowloon Peninsula, ....	...	2	.....	140,841	...	646	.....	704.00
<b>Totals,.....</b>		<b>277</b>		<b>1,090,370 or 25.03 acres.</b>		<b>\$14,719</b>		<b>\$489,726.86</b>

\* These amounts are not entirely Annual Crown Rents, as some of the permits are for very short periods.

The actual amount of premium paid into the Treasury during the year was \$512,997.66, or considerably more than the estimate, which amounted to \$350,000. It included the following sums, which do not appear in the above tabulated statement :—

Commutation of Crown rent for Kowloon Marine	
Lot 36, acquired by the Admiralty, .....	\$ 12,650.00
Premia derived from sale of rights to erect piers,...	10,107.50
Fees for boundary stones to mark lots, .....	1,242.50

It will be observed that the New Territory appears for the first time as having contributed to the revenue derived from land sales. The transactions were however unimportant. The following are details of some of the principal land sales :—

NUMBER OF LOT.	AREA. SQUARE FEET.	CROWN RENT.	PREMIUM.	PRICE PER SQUARE FOOT.
Marine Lot 282	35,910	\$660	\$274,025	\$7.63
"    " 284	15,200	280	133,525	8.78
"    " 281	16,000	220	8,045	.50
Inland Lot 1,704	14,924	102	10,645	.71
Shau-ki-wan Lot 396	6,800	44	6,225	.98
Kowloon Inland Lot 1,150	44,000	252	6,652	.15

One lot was put up for auction but the applicant failed to bid for it and his deposit of \$100—a sum which is required as a guarantee of good faith in the case of all applications to purchase land—was forfeited to Government.

The extensions granted were mostly unimportant. They included a small area to the North of Conduit Road adjoining Inland Lot 713 and 5 small areas near Tai Hang Village. The only one of consequence was in connection with Kowloon Marine Lot 33 at Fuk Tsün Heung, the area of the extension amounting to 1.90 acres, most of which was sea-bed in front of the lot.

With a view to carrying out a scheme of providing main thoroughfares in Kowloon, arrangements were made with the owner of the lot mentioned to surrender to Government a strip of his lot for the purpose of widening the adjacent public road to 100 feet.

The grants on short leases included the site formerly occupied by Crosby's Store and the Education Office (6,626 square feet) which was let for a period of 4 years at an annual rent of \$1,200; the portion of the Praya Reclamation in front of the Central Market (23,520 square feet), let on a yearly lease at a rental of \$3,900; permission for a dam for water supply purposes in the Sookunpoo Valley for a period of 5 years at an annual rent of \$300; a strip of land on the Shaukiwan Road, adjoining Inland Lot 1393, (9,570 square feet) at an annual rent of \$100; and an area of 9,900 square feet near Mongkok, formerly held by a squatter, on which a tile factory had been erected and which was let on a 5-years' lease at a rental of \$114 per annum.

The permits to occupy land for short periods comprise various areas let for storage and other purposes and a few quarrying permits for the more remote parts of the New Territory.

The grants on nominal terms include a small area (2,500 square feet) for a temple at Tung Lo Wan; another for a cable hut for the Telegraph Companies at the junction of Bonham and Pokfulam Roads; an area of nearly an acre at Kai Lung Wan for an extension of the ground used for burying urns containing disinterred remains; an area of 2 acres at Happy Valley for the Asile de la Sainte Enfance; a small area (2,267 square feet) adjoining St. Joseph's Church in Garden Road; and an area of 1.55 acres for the erection of an Anglican Church in Kowloon near the Observatory.

The re-adjustments of boundaries were mostly in connection with lots for which it was not possible, from the nature of the sites, to define the limits accurately on the ground in the first instance and were generally of trivial extent. The only case worthy of special mention is one in which the Cement Company having acquired some small lots, adjoining Kowloon Marine Lot 40, were allowed to enclose some

small areas formerly reserved for affording access to these lots. In consideration of the lease of Kowloon Marine Lot 40 being made renewable for a further term of 75 years, the Crown rent was increased from \$61 to \$100 per acre.

In the case of 108 squatters' holdings at Tai Hang Village, the leases, which were yearly ones, were converted into 75-years' leases on payment of extra premium and Crown rent, and a similar course was followed in the case of a lot at Fuk Tsün Heung which was formerly held on a 7-years' lease.

The following is a statement of the lots converted from Garden into Inland Lots:—

PREVIOUS LOT NO.	NEW LOT NO.	AREA IN SQUARE FEET.	PREMIUM.	CROWN RENT.
Kowloon Garden Lot 13 " " " 25	Kowloon Inland Lot 574 " " " 609	83,824 57,017	\$ 419.00 285.00	\$ 384.00 262.00

Arrangements were completed for the conversion of Inland Lots 501 and 502 and a portion of Inland Lot 29, situated on Praya East, into Marine Lots with a view to their participation in the projected Reclamation Scheme, but the matter has not yet been definitely concluded.

3. *Lease Plans.*—Plans and particulars (in duplicate) of 208 lots were furnished to the Land Office in connection with the issue of leases.

4. *Boundary Stones.*—Boundary stones were fixed for 23 lots in Hongkong and 6 in Kowloon.

5. *Sites for Booths at the Race-course.*—A sum of \$1,922.10 was realized by the letting of sites for the erection of booths and stands at Happy Valley during the Race Meeting.

6. *Squatters' Licences.*—The number of Squatters' licences on the roll at the commencement of the year was 980, representing an annual rental of \$2,429.63. During the year, 5 were written off, leaving 975 still on the roll, the fees for which amounted to \$2,410.13.

7. *Military Lands.*—The negotiations between the Colonial Government and the Military Authorities, referred to in last year's Report, for an exchange of lands were still unconcluded at the close of the year. Pending a settlement, the Military Authorities were allowed into possession of considerable areas at Pinewood Battery, below High West Gap, and at a point on the Jubilee Road, about a mile beyond the Plague Hospital. Arrangements were also made for the construction of new Rifle Ranges behind Kowloon City under the supervision of the Royal Engineers and at the expense of the Colony. This is necessary to enable the present ranges to be relinquished with a view to the formation of the King's Park in Kowloon.

8. *Naval Lands.*—The Admiralty having acquired Kowloon Marine Lot 36, the Crown rent was commuted upon payment of the sum of \$12,650 into the Treasury, as already mentioned. An area of about 4 acres of land, mostly hillside, on the promontory west of Lai Chi Kok Bay, was placed at the disposal of the Naval Authorities in connection with the establishment of a Torpedo Range in that neighbourhood.

9. *Piers.*—The right of erecting piers under long leases was granted in 3 cases in Hongkong and in 4 in Kowloon, whilst extensions of 2 piers formerly sanctioned in Hongkong were also granted. The premia derived in the case of Hongkong piers amounted to \$9,357.50 and of Kowloon piers to \$6,050, the annual rentals being \$1,170 and \$780 respectively. Licences for the following temporary piers for various periods were issued:—11 in Hongkong, 14 in Kowloon and 5 in the New Territory, the amount of fees payable for these being \$2,615.

10. *Granite Quarries.*—As the result of an inspection of the quarries in the New Territory, it was found that the rentals charged were much below those in the case of the Hongkong and Kowloon Quarries and arrangements were therefore made to increase the former in 1904 from \$3,725 to \$15,000 per annum; leases for periods of 3 years at these rentals being granted. Very extensive quarrying operations are now carried on, notably at Cha' Kwo Leng, Lyeemun and Ngau Tau Kok.

WORK UNDER THE BUILDING ORDINANCE.

11. *New Ordinances.*—The new Ordinance referred to in last year's Report (No. 1 of 1903 as it became) was finally passed in February, coming into force on the 21st of that month. After being enforced for a brief period, it became evident that its provisions with regard to cubicles were too drastic and that it would be necessary to modify these in order to meet the requirements of the humbler section of the Chinese population. An amending Ordinance was accordingly passed in December which altered the definition of a cubicle so as to render it unnecessary to provide a window or skylight specially for such a structure apart from the windows or skylights lighting the room in which it is situated, prohibited the construction of such cubicles in houses hereafter erected or re-erected and permitted only two cubicles and in some cases only one, to be maintained in any room of an existing house. The requirements of a greater floor-area and cubic space per occupant were made applicable to *all* houses; the term "external air" was more clearly defined; cubicles, lobbies and landings were excluded from the definition of a "room"; and sundry minor amendments, principally bearing upon the administration of the Sanitary Department, were made.

The effect of the new Ordinance, whilst imposing additional responsibilities upon those authorized under its provisions to practise as Architects has been to largely increase the duties and responsibilities of the Public Works Department. In the case of numerous matters, powers of modification or exemption are vested in the Governor in Council and, in numerous others, similar powers are vested in the Director of Public Works as Building Authority. Applications coming under the former class, except as regards the provision of back-yards, &c., which are dealt with by the Sanitary Board, are almost invariably referred to the Director of Public Works and have to be investigated and reported on by him and, in consequence of the great variety of conditions prevailing in the City, almost every case requires to be specially considered. Even in the case of matters coming within the purview of the Sanitary Board, the Director of Public Works must, in his capacity as a member of the Board, make himself acquainted with the circumstances of the various cases and is generally expected to express his opinion whenever any peculiar conditions occur. Under previous Building Ordinances, no question of compensation arose, but under the new Ordinance a number of provisions are specified with regard to which compensation has to be paid and all such matters have to be dealt with by the Public Works Department. Finally, the new Ordinance contains a much greater amount of detail affecting the construction and arrangement of buildings than any previous Ordinance.

12. *Plans.*—Plans were deposited during the year for the following:—

European houses, .....	24
Chinese houses, .....	330
Buildings and structures other than the above, .....	126
Alterations and additions to existing buildings, .....	1,045
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Total,.....	1,525
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There was again a considerable decrease in the first two items, the new houses for which plans were submitted numbering only 354 as against 500 in 1902 and 952 in 1901. The third item shows a decrease of 244 as compared with 1902, and the fourth item an increase of 326, the latter being doubtless the outcome in great measure of the enforcement of the provisions of the new Ordinance.

13. *Certificates.*—Certificates for 432 new buildings were issued under section 53 of Ordinance 15 of 1889\* and for 2 new buildings under section 204 (1.) of Ordinance 1 of 1903, a decrease of 503 as compared with 1902.

14. *Verandahs and Balconies.*—Permission was granted for the erection of 151 verandahs and balconies.

15. *Notices and Permits.*—Notices relating to structures in a dangerous condition were served in 151 cases, whilst 1,526 permits and 83 notices of a miscellaneous nature were issued.

\* *Vide* section 204 (2.) of Ordinance 1 of 1903.

16. *General Remarks.*—The Naval Yard Extension and Messrs. BUTTERFIELD & SWIRE's Shipyard Works were still in progress throughout the year. In the case of the former, the sea wall and inner-wall or quay forming the pier on the north side of the Basin, a portion of the east wall of the Basin and the Murray Pier Extension and roundhead beyond it were all brought above low-water level, whilst the cofferdam enclosing the site of the graving dock was completed and the water pumped out. In the case of the Quarry Bay Shipyard Works, the side walls of the graving dock for more than half its length were in progress and the excavation for the remaining portions well advanced, whilst the cofferdam to enclose the site of the entrance was nearing completion. Substantial progress was also made with the levelling operations, large masses of rock having been excavated and tipped to form the reclamation. The large blocks of buildings on the Praya Reclamation between Ice House and Pedder Streets were in progress throughout the year, the triangular block at the junction of Des Voeux and Chater Roads, designated "Alexandra Buildings," being nearly completed. The south-eastern section of Princes Buildings was roofed in before the close of the year. The buildings for the Electric Tramway Power Station, on the east side of Bowrington Canal, were nearly completed, and a new Chinese Theatre was erected near the Gas Works, West Point. Substantial progress was made with the reclamation at Tsim Sha Tsui between Blackhead's Point and Kowloon Marine Lot 6.

PUBLIC WORKS RECURRENT.

17. *Maintenance of Buildings.*—The buildings upon which any considerable sum was expended were the following:—

Queen's College—New roof over hall, &c., .....	\$6,423
Government Civil Hospital—Miscellaneous repairs, doing up buildings, &c., and providing and fixing glazed earthenware sinks, .....	5,762
Victoria Gaol—Repairing hot-water tanks, supplying materials for concreting lower yard, &c.,.....	3,053
Central Police Station—Reconstructing verandah, covered way, &c., and doing up Inspector's Quarters,.....	2,756
Supreme Court Buildings—Painting, colour-washing, &c.,	2,556
Cattle Dépôt, Kennedy Town—Doing up buildings, &c.,	1,802
Government House—Doing up coolie quarters, miscellaneous repairs, &c.,.....	1,738
Infectious Hospital, Kennedy Town—Doing up buildings, repairing matsheds, &c., .....	1,735
Magistracy— Doing up building, renewing floors, &c.,	1,428
Central Market—Repairing roofs, colour-washing, &c..	1,386
Bellios School—Doing up buildings and renewing verandah floors, .....	1,381
Tsim Sha Tsui Police Station—Partly doing up buildings, repairing roofs, &c., .....	1,309
No. 8 Police Station—Doing up building and fixing wooden ceilings, .....	1,288
Government Offices—Miscellaneous repairs, &c., .....	1,117
Observatory—Doing up buildings, reconstructing drains, &c., .....	1,040
Mountain Lodge—Sundry fittings, cupboards, &c., .....	1,014
Gunpowder Magazine, Stonecutters' Island—Doing up buildings, .....	996
Disinfecting Station, Caine Lane—Providing iron bars to windows, repairing matsheds, &c., .....	914
Peak Signal Station—New roof and general repairs, .....	817
Yaumati Police Station—Doing up buildings, &c., .....	807
Mortuary at Yaumati—Temporary structures, repairs, &c.,	784
Hanging punkahs for Government Buildings generally,	719
Western Market—Doing up buildings, repairing drains, &c., .....	602
Lunatic Asylum—Doing up buildings, .....	587
Hung Hom Market—Doing up buildings,.....	558

Aberdeen Police Station—Doing up buildings, .....	\$ 550
Kowloon British School—Doing up internally and fixing desks, &c.,.....	524
Green Island Signal Station—Doing up building and general repairs, .....	462
General Post Office—Colour-washing, &c., .....	458
Staff Quarters, Government Civil Hospital—Partly doing up building, providing screens, half-doors, &c., .....	442
Mount Gough Police Station—Repairing roof and doing up buildings,.....	431
Aberdeen School—Doing up building, .....	420
No. 1 Police Station—Doing up buildings and fixing stove,	416

18. *Maintenance of Buildings, New Territory.*—In the case of the New Territory buildings, the following are those which entailed considerable expenditure:—

Sai Kung Police Station—Surfacing pathway with concrete, &c.,.....	\$1,229
Kowloon City do. — Doing up buildings, .....	989
Au Tau do. — Do., .....	920
Ping Shan do. — Do., .....	912
Sha Tin do. — Repairing roof, matshed, &c.,	582
Yung Shi Wan do. — Doing up buildings, .....	513
Lai Chi Kok old Customs Station—General repairs, ...	673
Sha Tau Kok Police Station—Doing up buildings, .....	617
Cheung Chau do. —New floors, &c.,.....	517
Tai Po do. —Doing up buildings, &c.,	517

19. *Maintenance of Telegraphs.*—A direct telephone line was run from Victoria Gaol to Belilius Reformatory on account of the latter being converted into a branch prison, and communication was established between the Government Exchange at the Central Police Station and the following places:—Victoria Hospital, the Principal Civil Medical Officer's residence at the Peak and the Bacteriologist's residence at Castle Road. The work of moving the lines running in the direction of Kowloon City, so as to bring them alongside the main road, was proceeded with.

Considerable trouble was experienced with the cables crossing the Harbour. The one to the Observatory was fouled by a ship's anchor and broken and, after being repaired, was found to be still in an unsatisfactory condition. As the result of an examination and tests, it was condemned, taken up and sold, and arrangements were made with the Joint Telegraph Companies for the use of one of their cables pending the laying of a new one, which was ordered from England. The service through the Police cable having been interrupted, an inspection showed that it had been cut near North Point and a portion of it stolen. The two ends having been recovered, a new length of cable was spliced in and the service has since been satisfactorily maintained.

20. *Maintenance of Telegraphs in New Territory.*—The principal item of work under this heading was the construction of a line from the Water Police Station at Tsim Sha Tsui Point to Tai Kung Police Station, thus bringing the latter into telephonic communication with the Exchange at the Central Police Station.

21. *Maintenance of Public Cemetery.*—The Cemetery was maintained in good order with the exception of a few places where landslips occurred during heavy rainstorms, causing damage to several monuments. The work of reinstating these was undertaken. Permits to the number of 86 were issued for the erection or repair of monuments. In December, the care of the Cemetery grounds was handed over to the Botanical and Afforestation Department.

22. *Maintenance of Praya Wall and Piers.*—The following were the principal works defrayed out of this vote:—

Tsim Sha Tsui Pier—Repairs, .....	\$ 1,085
Blake Pier—Cleaning and painting and erecting matshed shelter, .....	852
Fuk Tsün Heung—Repairing sea-wall and pier, .....	851
Yaumati—Rebuilding sea-wall adjoining Kowloon Marine Lot 39, .....	787

Temporary pier in substitution for Murray Pier which was closed owing to Naval Yard Extension Works, \$	600
Tsim Sha Tsui Police Basin—Repairing slip, &c., .....	548
Ah Kung Ngam—Repairing sea-wall, .....	499
Yaumati Pier—Repairs, .....	443
Shaukiwan Road—Repairing sea-wall, .....	402
Stonecutters' Island—Pier for gunpowder dépôt—Repairs,	375

23. *Maintenance of Lighthouses.*—The following sums were expended upon the various lighthouses :—

Waglan, .....	\$2,050
Gap Rock, .....	1,844
Green Island, .....	362
Cape Collinson, .....	305

All these structures were painted and otherwise done up during the year, whilst there was some exceptional expenditure at Waglan in covering the roof of the quarters with asphalte and at Gap Rock in repairing one of the derricks and transferring the old one to a new site.

24. *Dredging Foreshores.*—20,742 cubic yards of rubbish were dredged from the City and Kowloon Dust Boat Stations, and 2,627 cubic yards of material from other portions of the foreshores, the whole being deposited at sea, whilst 1,846 cubic yards were dredged from the mouth of Water Street Nullah and deposited on the Praya Reclamation Works.

The Dredger was hired to Messrs. PUNCHARD, LOWTHER & COMPANY, for one week, for duty on the Naval Yard Extension Works.

The dredging machinery and gear were repaired and put into thoroughly good order in the spring, the vessel being put on the slip for cleaning and painting at the same time, and again during the last week of the year.

25. *Miscellaneous Works.*—The following are the principal items of expenditure under this vote, representing in some cases only a part of the cost of the work in consequence of its execution extending into more than one year :—

Carrying on operations for ridding malarial districts of the anopheles mosquito, .....	\$6,787
Quarters for Chair Coolies at Victoria Gap, .....	5,675
New flagstaff at Waglan Lighthouse, .....	2,125
Retaining wall behind Tung Wah Infectious Hospital, Kennedy Town, .....	1,982
Alterations, cupboards, &c. at General Post Office,.....	1,830
Electric fans and lights for Council Chamber and Extension of Government Offices, .....	1,531
Alterations at Quarters, West Point Filter Beds, .....	1,465
Additions and Alterations at Yaumati Police Station,...	1,380
Fittings for Kowloon British School,.....	1,362
Winches, &c. for Hunghom Slaughter-house, .....	1,318
Forming and concreting paths at the Governor's Peak Residence, .....	1,306
Fitting up apparatus at City Disinfecting Station, laying gas service, &c.,.....	1,115
Fittings for Victoria Hospital, Barker Road,.....	985
Cadogan Street Improvements, Kennedy Town, .....	974
Repairing matsheds at Taipo,.....	834
Cupboards for the Governor's Peak Residence,.....	800
Altering old Tung Wah Mortuary for observation shed for cattle, .....	641
Improving gas lighting at Central Police Station, altering cells, &c.,.....	602
Electric fans for Attorney General's and Crown Solicitor's Offices,.....	579

Miscellaneous fittings for Government House,.....	\$ 576
Covering yard at Water Police Station,.....	570
Retaining wall on Chamberlain Road,.....	501
Altering stables near No. 7 Police Station and constructing Dog Pound,.....	410
Altering Belilius Reformatory for temporary prison, ...	398
Improving inlet of covered nullah at Happy Valley,.....	393
Steps between Government and Tung Wah Infectious Hospitals at Kennedy Town,.....	357
Increasing accommodation for public chairs at Victoria Gap Chair Shelter,.....	354
Fixing Boundary Stone at Mirs Bay to define the limit of the New Territory, .....	351
Alterations for temporary extension of No. 2 Police Station, .....	343
Compensation for stoppage of sandalwood mill near Tsün Wan and for use of Mill Race during water famine, 1902,.....	333
Repairs of capstan, &c, Water Police Basin,.....	321
Materials for telephone line to Dr. HUNTER's house,.....	311
Gas lamp (100 candle-power) at junction of Bowen and Magazine Gap Roads,.....	300
Surface channels at Shek Tong Tsui Market, .....	292
Police Sentry Boxes at the Peak, .....	283
Removing and re-erecting monument at the Happy Valley,.....	282

The expenditure on the first item included a sum of about \$2,000 spent in constructing 3,320 lineal feet of concrete channels in outlying districts.

The quarters for chair coolies at Victoria Gap were completed in April and leased to the licensee of the public chairs for the Hill District. The building is a two-storied one, containing accommodation for 96 coolies, for whom bunks have been fitted up. A cook-house on the ground floor only was at first constructed but to meet the requirements of the coolies, another storey, accessible from the upper floor of the quarters, was subsequently added. Latrine accommodation is provided in a separate building.

The flagstaff at Waglan Lighthouse is 82 feet in height and is provided with a yard for signalling purposes. The lower mast is of steel and the upper mast and yard of Oregon pine, with stays of steel wire rope and all the requisite fittings and a winch, &c., for lowering the upper mast. It was constructed and erected by the Dock Company.

The retaining wall behind the Tung Wah Infectious Hospital was rendered necessary by the frequent landslips which occurred from the hill where it has been cut away to level the site for the hospital, the ground being of a very treacherous nature. Great trouble was experienced during the progress of the work from repeated landslips which greatly retarded operations and prevented its completion before the close of the year.

The only other item calling for comment is the one for payment of compensation for the stoppage of a sandalwood mill in connection with the water famine during the spring of 1902. The delay in settling this matter arose from the death of the owner of the mill and the difficulty of ascertaining to whom the money should be paid, his relatives residing in the interior of China.

26. *Maintenance of Roads and Bridges in City.*—There was an exceptional amount of disturbance of the surfaces of roads throughout the City during the year, due to the construction of the Electric Tramway and the laying of the cables for same; the laying of cables from the Telegraph Company's Office, by way of Garden and Kennedy Roads to Wongneichong and by way of Garden, Caine and Bonham Roads to Pokfulam Road; the laying of a large gas main between the Gas Company's principal establishment at West Point and their branch at Wanchai; the laying of cables for light and power purposes in the eastern portion of the City; besides numerous other pipes, &c., of minor extent. The widening of Queen's

Road from the City Hall to Arsenal Street was practically completed, only a small portion of the old Provost Prison remaining to be removed. A portion of the widening of Arsenal Street still remained to be done. The roads on the Praya Reclamation were practically completed, but were much disturbed and interfered with by the extensive building operations in progress on the recently reclaimed land. The two steam road-rollers were kept well employed, the roads being maintained generally in good condition. The use of salt-water for watering is, however, exercising a very injurious effect upon them causing the surface to break up on the occurrence of damp weather. The heavy rainstorms experienced caused some damage in the way of landslips, which blocked or carried away portions of the roads, whilst the surfaces of some of the steeper roads were scoured out.

27. *Maintenance of Roads and Bridges outside City.*—The remarks made in the preceding paragraph apply here also to a considerable extent as the Electric Tramway extends to Shaukiwan and one of the Telegraph Company's cables already mentioned continues from Wongneichong to Deep Water Bay. The Jubilee Road from Kennedy Town to Aberdeen, which is referred to elsewhere, constituted the only addition to the roads in the outside district, a portion of the old road near Aberdeen which has been superseded by it, being closed to traffic. A landslip which carried away a portion of the disused road occurred during the year. Some improvements were made by constructing concrete side-channels in places and several of the more dangerous parts of the roads in the Hill District were protected by iron railings or stone parapet walls.

28. *Maintenance of Roads and Bridges in Kowloon.*—A steam roller was obtained for the Kowloon roads but was employed for a time on the Praya Reclamation in Hongkong to assist in consolidating the filling deposited to form the roads there. The application of granite macadam for surfacing the main roads in Kowloon is being extended as funds permit. By arrangement with the Contractor who is carrying out the Tsim Sha Tsui Point Reclamation, an embankment was constructed outside the road past Gun Club Hill which will admit of widening and improving the latter considerably, when the Contractor's light railway has been removed. This part of the road was formerly very narrow and, from the fact that there was an awkward corner in it and that it was at a considerable height above the beach, it was ill-adapted for vehicular traffic which has increased largely of late years.

29. *Maintenance of Roads and Bridges in New Territory.*—The road to Tai Po continues to be practically the only one in the New Territory, there being besides only a couple of short portions of roads near Kowloon City, north of the old boundary line of British Kowloon. The Tai Po Road suffered a good deal from the rainstorms and from the operations of the Contractor engaged in quarrying stone above it and conveying it to the site of the Kowloon Storage Reservoir for the construction of the dam. Repairs were in progress during the latter part of the year, the principal portion of the road being in a satisfactory condition.

30. *Maintenance of Sewers, Nullahs, &c.*—It was proposed by Mr. CHADWICK in his Report of the 10th April, 1902, that the cleansing of the drains, sewers and nullahs, which had formerly been performed by the Public Works Department, should be relegated to the Sanitary Board and placed under the charge of the Medical Officer of Health and, with a view to giving effect to this proposal, tenders were invited by the Government. The conditions upon which the tenders were based were that the Contractor should find all necessary labour whilst the Government were to supply all tools required and the scope of the proposed contract was limited to the City; the Hill District, Kowloon, Aberdeen and Shaukiwan not being included. Any case of a blocked sewer or drain which defied ordinary methods and involved opening of the ground in order to clear it, was also excepted from the proposed contract. As the lowest tender received amounted to \$19,560, it was decided to carry on the work under the Public Works Department as formerly and it is satisfactory to note that the entire cost of maintaining the drains, sewers, &c., in the various localities throughout the Colony in good condition only amounted to \$17,293.61. The details are as follows:—

Labour for cleansing operations, .....	\$ 13,288.80
Tools for do, .....	1,107.48
Repairs, .....	2,897.33
Total, .....	\$ 17,293.61

The diversion of Albany Nullah from a point a little way south of Queen's Road northwards across the Naval Yard Extension was completed and the water turned into it during the first half of the year. The severe rainstorms of the 27th to 28th June caused the inlet to the culvert underneath Queen's Road to become blocked by large stones and debris which were carried from a breach made in the nullah on Military land adjoining the lower Tramway Terminus, but no serious damage resulted from this.

31. *Gas Lighting, City.*—The total number of gas lamps in use at the end of the year was 915, an increase of 28 during the 12 months, which is principally due to the lighting of private streets and lands. The number given is exclusive of lamps within the Military Cantonment, the lighting of which is borne in equal shares by the Government and the Military Authorities. Some trouble was experienced on account of the insufficient supply of gas which was attributed by the Gas Company to the deposit of naphthalin in the pipes.

32. *Electric Lighting, City.*—No alteration has been made in the number of lamps, which remains at 75.

33. *Gas Lighting, Kowloon.*—The total number of lamps was increased from 186 at the end of 1902 to 201 at the end of 1903. This increase was due principally to extensions of the built-over areas.

34. *Maintenance of Public Recreation Grounds.*—In consequence of the continued occurrence of floods in the Happy Valley during heavy rainstorms, the embankment of the nullah to the north of the Grand Stand Enclosure was raised and the inlet to the culvert near the Golf Club House improved. A line of 21-inch pipes was also laid alongside the 18-inch pipes mentioned in last year's Report, the cost of this work being defrayed out of the Vote "Drainage Works, Miscellaneous." Portions of the Queen's Recreation Ground were re-turfed.

35. *Maintenance of Clock Tower.*—There is nothing special to record under this heading.

36. *Forming and Kerbing Streets.*—A large amount of work was done under this heading, the following being the principal items:—

*City.*

Improving Queen's Road by filling in hollow near Arsenal Street, .....	\$5,800
Forming and concreting roads in Kennedy Town District, including Smithfield, Cadogan Street and path to Police Station, .....	4,817
Improving Wanchai Road by lowering summit and easing gradients, .....	3,923
Surfacing roads and lanes in Taipingshan District, ...	2,153
Constructing retaining wall below Belcher's Battery and behind Inland Lot 1502 and surfacing lane, .....	1,035
Constructing path between Kennedy and Macdonnell Roads, west of Inland Lot 1453, .....	429
Re-forming Jackson Road, .....	287
Improving approach path past Victoria Battery to West Point Filter Beds, .....	254
Surfacing lane at Chinese Lunatic Asylum, ....	252

*Kowloon.*

Kerbing and channelling Garden and Chater Roads and improving other roads at Kowloon Point,.....	4,446
Kerbing and channelling roads in Yaumati and Mong-kok,	3,389
Kerbing and channelling roads at Hunghom, .....	2,849
Opening out lane by cutting away hill behind houses on Kowloon Inland Lots 106-109 at Yaumati, ...	1,003

*Hongkong, other than City.*

Constructing retaining walls rendered necessary by widening road past Quarry Bay Shipyard, .....	\$ 5,373
Straightening Barker Road past Victoria Hospital and forming approaches to Hospital, .....	1,211
Kerbing and channelling roads at Inland Lots 1617-1618, North Point, .....	943
Contribution towards cost of Jubilee Road on account of damage done by rainstorm,.....	524
Track for path from Plantation Gap to Barker Road, .	303

37. *Extension of Gas Lighting.*—Irrespective of those erected in private lanes and streets, the cost of which was defrayed by the owners of the adjacent property, 6 lamps were added in Conduit Road, 3 in Wongneichong Road and 5 in various other parts of the City, whilst 14 were added in and about Yaumati, Kowloon.

38. *Drainage Works, Miscellaneous.*—The principal items of expenditure under this heading were the following, the amount stated being only a part of the cost in some cases owing to the work extending into more than one year :—

Constructing nullah in Cooke Street and Gillies Avenue Hunghom (completed), .....	\$ 11,296
Training nullahs to east and south of Inland Lot 1523, Macdonnell Road,.....	6,197
Constructing flushing tank in Garden Road adjoining Volunteer Headquarters with connections to sewers, .....	4,274
Reconstructing stormwater drains in Government House grounds,.....	3,832
Training nullah past Grand Stand Enclosure, Happy Valley, .....	3,500
Reconstructing drains at Kennedy Town Cattle Depôt,	2,584
Constructing sewer outfall in connection with Praya Reclamation Works,.....	2,405
Laying 21-inch drain to carry off stormwater from Happy Valley, .....	2,081
Training nullahs adjoining Victoria Hospital and Rural Building Lot 91, Barker Road, .....	2,044
Laying main sewer in Barker Road, .....	1,379
Constructing channels and draining valley below Stewart Terrace, the Peak, .....	1,110
Laying sewer from the Public Mortuary, Hill Road, to the Harbour,.....	947
Extending sewer for houses on Kowloon Inland Lot 421, Austin Road, Kowloon, .....	899
Extending sewer for houses on Leighton Hill Road,	623
Forming new invert to nullah near Merton Lodge (Inland Lot 1216), Western District of City, ...	616
Constructing stormwater drain opposite Marine Lot 239, Kennedy Town, .....	601
Laying sewer for houses on Kowloon Inland Lot 1078 Mong-kok-tsui, .....	440
Extending stormwater drain in Man Ning Lane, Yaumati, .....	408
Constructing catchwaters, &c., at Tai O Police Station, Lantao Island, .....	402
Extending sewer in Des Vœux Road Central opposite Marine Lot 63,.....	324

It will be observed from the foregoing list that a large proportion of this vote was expended in training nullahs, a work to which so much importance is now attached as a means of preventing the dissemination of malarial fever by mosquitoes, for the propagation of which the untrained streams afford highly favourable conditions.

The flushing tank mentioned in the third item is the one whose construction was recommended by Mr. CHADWICK in his Report of the 13th May, 1902.

After a vain endeavour to obtain a site, first under the Parade Ground and subsequently under a corner of the Cathedral compound, it was decided to construct the tank behind the Volunteer Headquarters. It has a capacity of 6,000 gallons, is filled by means of a special pipe with water from Albany Nullab, and is capable of being discharged either into the main sewer extending eastwards to the outfall at Ship Street or into the one extending westwards to the outfall at Queen Victoria Street.

A sum of \$6,624 was expended from the vote upon the construction of connections to the drains of new buildings.

39. *Maintenance of Water Works, City and Hill District.*—The year opened with the intermittent system of supply in force, recourse having been had to it on the 1st November, 1902. The quantity of water in the storage reservoirs, which, on the 1st January, amounted to 293½ million gallons, dropped to 86½ millions on the 27th April, when rain practically put an end to the dry season. Constant supply was restored on the 7th May and was maintained until the 21st December, when it was deemed expedient to again resort to intermittent supply, Pokfulam Reservoir having ceased to overflow on the 26th September, Wongnei-chong on the 2nd October, and Tytam on the 24th October. The two periods of intermittent supply comprised 137 days, as compared with 205 days during 1902 giving 228 days of constant supply as compared with 160. This result, though principally due to the incidence of the rainfall, was contributed to by the installation of temporary pumping plant in the Tytam Tuk Valley and by the Tytam Bye-wash Reservoir being sufficiently advanced to enable about 20 million gallons to be impounded in September. At the close of the year, the contents of the storage reservoirs amounted to 269½ million gallons. It was not found necessary to have recourse to measures for importing water from the mainland as was done during the Spring of 1902, nor was the supply at any time unduly restricted.

The total quantity of water supplied during the year was 1,285,574,000 gallons filtered and 25,403,000 gallons unfiltered, making a grand total of 1,310,977,000 gallons or 338·7 millions more than in 1902.

The average consumption of filtered water per day during constant supply was 4,296,000 gallons, which, with an estimated population of 219,200, gives an average daily consumption of 19.6 gallons per head for all purposes. During intermittent supply, the average daily consumption was 10.1 gallons per head, equivalent to a total daily supply of 2,214,000 gallons, whilst, taken over the whole year, the average consumption per head per day amounted to 16 gallons.

Full details of the consumption, contents of the reservoirs, &c., will be found in Appendices D., E. and F. The analyses made by the Government Analyst showed that the quality of the water throughout the year was excellent.

The quantity pumped to the High Level District of the City amounted to 49,797,000 gallons over the whole year, equal to an average daily consumption of 136,430 gallons, whilst 25,496,000 gallons were pumped to the Hill District, giving an average daily consumption of 69,852 gallons. These figures show a large increase over those for 1902 when the totals for the High Level District and Hill District respectively were 30,450,000 and 17,443,000 gallons. The grand total pumped during the whole year amounted to 75,293,000 gallons as compared with 47,893,000 in 1902. Tabulated statements containing particulars of the quantities pumped to the Hill District and High Levels respectively, in successive years since 1892, will be found in Appendices G. and H.

The whole of the motors were maintained in a good state of repair and the steam pumping engine at Bowen Road was also satisfactorily maintained. In consequence of the increased consumption in the High Level and Hill Districts, it was found necessary to supplement the pumping plant in a temporary manner, pending the arrival of plant ordered from England. A small engine and boiler were purchased locally and installed immediately below the West Point Filter Beds where they were used for pumping to the High Level District, thus leaving the Bonham Road engine free for maintaining the supply to the Hill District. The temporary plant was got into working order on the 1st October and a reference

to Appendix H. will show that the additional power was required in order to cope with the demands of the High Level District, in which a great increase of population has occurred during the past few years as the result of the erection of numerous houses.

Mount Gough Service Reservoir having been completed, was brought into operation in October in connection with the Hill District supply and has proved of great service. The houses on Barker Road, including the new Victoria Hospital, and those at Magazine Gap are now supplied from this source.

Advantage was taken of Pokfulam Reservoir being practically empty in the early part of the year to remove from the bottom of it all silt and soft material. As measured in boxes, when deposited in the bye-wash, the total quantity of material removed amounted to 13,770 cubic yards.

The temporary pumping plant established at Tytam Tuk was brought into operation on the 1st November and yielded 20 $\frac{3}{4}$  million gallons up to the close of the year. Several bursts occurred in the rising main in the early stages of pumping, but repairs were effected and measures adopted to strengthen the parts which had failed, with the result that no further accident of this nature occurred.

The number of meters in use at the end of the year was 534 in the City and 151 in the Hill District.

The quantity of water supplied by meter was:—

	<i>Gallons.</i>
Filtered:—Trade, .....	93,196,000
Domestic (City), .....	70,109,000
Do. (Hill District), ...	14,687,000
Unfiltered, .....	25,394,000
	<hr/>
Total, .....	<u>203,386,000</u>

The increase in the number of meters was 130 and in the quantity of water supplied through them 63,491,000 gallons, as compared with 1902.

During the year, new services were constructed or old ones altered and improved in 472 instances and in addition 483 services were inspected and connected to the mains. Owing to frequent changes among the staff engaged in reading meters, etc., and to pressure of other work practically no inspections were made for the purpose of detecting defective services and no notices in respect of such matters were served.

40. *Maintenance of Water Works, Kowloon.*—The supply of water in Kowloon was nearly, but not quite, constant throughout the year. In the absence of a storage reservoir, the supply is not under control as in the case of the City, especially as regards the Cheung Sha Wan In-takes, the water from which, if not drawn off from the mains, would simply run to waste. In the dry season, the yield of the streams is insufficient to keep the mains fully charged and consequently the supply obtainable from the fountains is somewhat meagre. This state of matters will be remedied in great measure on the completion of the service reservoir at Kowloon Tong which is now well advanced and will be capable of containing 2 million gallons. Three new in-takes at Cheung Sha Wan were constructed in the early part of the year and brought into use, making 9 in all. The four in-takes originally constructed still form the principal sources of supply, the five new ones, though of the greatest utility during the wet season, affording but little water during the dry season.

The total consumption for the year amounted to 161,866,000 gallons or an average consumption of 443,470 gallons per day, which, with an estimated population of 62,500 gives 7.1 gallons per head per day for all purposes. Details are given in Appendices J. and K. The analyses made by the Government Analyst showed that the water was of excellent quality.

The pumping machinery, buildings, etc., were maintained in good repair throughout the year.

There were 196 meters in use at the end of the year, an increase of 52 over 1902. Private services were constructed, altered or repaired in 73 instances.

41. *Maintenance of Water-Works, Aberdeen and Shaukiwan.*—A satisfactory supply of water was maintained at Aberdeen and Shaukiwan during the year, the total consumption amounting to 6,003,000 and 7,350,000 gallons respectively, or 16,000 and 20,000 gallons per day. Details are given in Appendices L. and M.

42. *Water-works, Miscellaneous.*—The following is a statement of the principal items of expenditure under this heading, being in some cases only part of the cost on account of the work having been begun in 1902 or not completed by the end of 1903 :—

Reconstructing aqueduct from Tytam West Catchwater, forming small channels alongside catchwaters to take the dry-weather flow of streams and con- structing face-walls to banks of reservoir near top-water level, .....	\$14,788
Relaying clear-water pipe at Pokfulam Reservoir,.....	6,684
Extending return wall of Wongneichong Reservoir into bank on account of landslip and restoring bank, .....	4,799
Diverting main in Glenealy in order to be clear of Inland Lot 645, .....	950
Altering main in Station Street South, Yaumati, on account of lowering road,.....	294

The reconstruction of the aqueduct referred to in the first item was rendered necessary by the decay of the large steel pipes, 18" diameter, of which two lines were originally laid for conveying the stream from Tytam West Catchwater into the reservoir. In carrying out the work, it was decided to dispense entirely with pipes and to convey the water in an aqueduct formed of cement concrete supported on steel joists and made to discharge over the top of the Bye-wash Dam. To admit of this being done, the pillars which had hitherto supported the pipes had to be increased in height to the extent of 10 feet. The aqueduct was made of equivalent capacity to the catchwater, its dimensions being 3'6" by 2'6"; the steel pipes formerly used having been inadequate to take the flow during heavy rainstorms, thus causing a loss of water. From the top of the Bye-wash Dam, the water is conducted in an open channel to a point where it can be discharged without causing injury to the retaining walls which form the sides of the Bye-wash channel. The pathway alongside the catchwater is carried across on top of the aqueduct to join the Tytam main road, the granite slabs which were formerly laid on top of the steel pipes being used again and the railings re-fixed.

43. *Water-works Ordinance.*—The Water-works Ordinance (No. 29 of 1902) did not receive the Royal Assent, an influentially-signed petition from the Chinese community having been presented against it. The provisions which provoked opposition on the part of the Chinese were those for disconnecting the services to tenement houses and requiring the occupants to obtain their supply from public fountains to be erected in the streets. In order to effect the object of the Ordinance, namely, the prevention of waste of water, the only alternatives were the universal introduction of meters or the application of the rider-main system to the most populous districts of the City. The first alternative was, for various reasons, dismissed as inapplicable and it was decided to adopt the second. A new Ordinance was therefore drafted which gave the Governor in Council power to define "Rider-Main Districts," that is, districts within which the supply of water to all tenements, unless specially exempted, would be effected through rider or branch-mains, controlled by valves so that an intermittent supply could be given without cutting off the water from the City at large. To meet exceptional cases, such as those of premises requiring a supply of water for trade purposes, power of exemption from disconnection with the principal mains was also given to the Governor in Council, meters being required to be fixed in all such cases as well as in the case of all services to tenements situated outside "Rider-Main Districts." It was further stipulated that the entire cost of providing the rider-mains was to be borne by the owners of premises which such mains are intended to supply, the apportionment of the cost being determined by the Water Authority. The Ordinance came into effect on the 25th September and new Regulations giving effect to its provisions were gazetted on the 9th October (Government Notification No. 657).

A requisition for the materials required for laying the rider-mains was forwarded to the Crown Agents in August and an Assistant Engineer and Overseer to arrange and supervise the work were applied for in September.

44. *Re-constructing and Repairing Roofs, Government Civil Hospital.*—As the roofs of the verandahs of the Main and Lower Hospitals and of C. Block, as well as the main roof of the latter, had been in an unsatisfactory condition for some time past, it was decided to execute extensive repairs, and to re-construct them where necessary. The roofs of C. Block were first undertaken, the main roof being, to a large extent, renewed and the verandah roofs, which had formerly been of timber and Canton tiles, being re-constructed with iron joists and bars and cement concrete, covered with a layer of asphalte  $\frac{1}{2}$ " thick. Good progress was made with the work by the end of the year, but it was still uncompleted.

#### PUBLIC WORKS EXTRAORDINARY.

45. *Law Courts.*—The contract for the foundations of this building was finally completed in April, much trouble having been experienced with the Contractor, as mentioned in last year's Report, towards the conclusion of the work. The tenders received for the superstructure were so unsatisfactory, principally from their excessive amount, that none of them could be accepted and after several futile attempts to arrange satisfactory terms with some of the Contractors who submitted the most favourable tenders, it was decided that the only practicable course was to carry out the work departmentally, the principal difficulty with regard to this being insufficiency of staff for the purpose. Whilst arrangements were being made to enable this course to be followed, a reasonable tender was received from Mr. CHAN A TONG, who had previously been unable to submit one, and, after some negotiations, a Contract was entered into with him in July. As the building is faced with dressed stone throughout, some time elapsed before enough of this could be obtained to admit of a substantial start being made, but work had progressed sufficiently to enable the foundation stone to be laid by His Excellency the Governor (Sir HENRY BLAKE) on the 12th November, and at the close of the year a large quantity of granite had been delivered on the ground and the walls had been built an average height of 4 feet above the foundations. Great care is being exercised in the selection and dressing of the stone for this important public building. It was unfortunately found necessary to dispense with the services of the Clerk of Works who had been obtained from England specially to supervise the work and up to the close of the year his successor had not arrived in the Colony.

46. *Western Market.*—The contract for the foundations was completed in March and a contract for the superstructure was entered into with Messrs. SANG LEE & Co. in November. The delay in arranging the latter arose through the large number of important works for which drawings, specifications and quantities had to be prepared and the great amount of trouble experienced in connection with the Law Courts. Work on the building was begun at the close of the year.

47. *Harbour Office.*—A contract for the superstructure was entered into with Mr. CHAN A TONG in June. Some delay occurred in obtaining suitable bricks and in preparing the dressed stone for the principal front. The walls were however built to an average height of about 10 feet above the foundations and nearly all the door and window frames on the ground floor were fixed.

48. *Survey of New Territory.*—The cadastral survey was completed early in May, the following being the areas surveyed during the year :—

<i>District.</i>	<i>Sub-Districts.</i>
Un Long,	Tai Lam Chung.
Kowloon,	Tsün Wan.
New Kowloon,	The whole.
Sha Tau Kok,	Won Hang and Luk Keng.
Lamma Island,	The whole.
Pu Toi Island,	The whole.
Tung Hoi District,	{ 4 small areas which had formerly escaped notice.

In the case of New Kowloon and Sha Tau Kok, the work consisted of a re-survey to enable maps of these districts on a scale of 32 inches to the mile to be prepared, those formerly prepared on a scale of 16 inches to the mile having been found unserviceable on account of the minute sub-divisions of the land.

A considerable area of cultivated land in the Kowloon Peninsula, south of the old boundary, was also surveyed and mapped on a scale of 32 inches to the mile.

The areas above enumerated amounted to 2,653.65 acres and included 28,245 holdings which, in addition to being surveyed and mapped, were also demarcated.

The staff engaged upon this portion of the work in the early part of the year consisted of 1 Inspector, 24 Surveyors, 32 Indian Chain-men and about 45 Chinese coolies, but, on its conclusion early in May, the Inspector, 20 Surveyors and 30 Indian Chain-men were sent back to India; the number of Chinese coolies being also reduced. Prior to this, 2 Surveyors and 1 Indian Chain-man were invalidated back to India, both the former dying on the voyage. The remaining 2 Surveyors were retained for office work.

The Surveyor who had been engaged upon traverse work and one of the Indian Chain-men referred to above were sent back to India in March, this work having also reached completion.

The staff engaged upon office work was fully employed throughout the year and underwent but little change. One office assistant was dismissed in July for insubordination and an additional Chinese tracer was engaged in February to expedite the reproduction of the maps for Land Court purposes. The entire staff remaining at the close of the year under Mr. NEWLAND consisted of 1 Inspector, 11 office assistants, 3 Chinese tracers, 8 Indian coolies, and 3 Chinese coolies.

The computation of areas was completed and statements furnished to the Land Court, the number of Demarcation Districts dealt with during the year amounting to 228.

Tracings of the whole of the Demarcation Districts, numbering 555 sheets in all, 45 of which were done in 1902, were made for Land Court purposes and a large number of these were reproduced by the sun-printing process. Tracings arranged after the manner of the Ordnance survey sheets of England are now being produced, 163 of these having been completed.

A general map of the New Territory on a scale of 2 inches to the mile is now being prepared. It will show all streams, roads, paths, cultivated areas and villages, the names of the latter being marked, whilst the hills will be indicated by contours.

A statement (Appendix C) prepared by Mr. NEWLAND is attached which contains details of the cadastral survey work done in the whole of the New Territory. The area surveyed south of the boundary of British Kowloon is not included in the statement.

*49. Additional Reservoirs, Tytam Drainage Area.*—In accordance with the advice of Mr. CHADWICK, (*vide* Report on the Sanitation of Hongkong, dated 10th April, 1902), the proposal made by Mr. COOPER in his Report of the 9th May, 1896, on the Water Supply of the City and Hill District, to construct additional reservoirs within the drainage area of Tytam Reservoir, which it was intended to carry out, was abandoned and the work executed under the above heading was confined to the construction of the Bye-wash Reservoir, which is situated immediately below the overflow of Tytam Reservoir and does not therefore encroach upon the catchment area of the latter. It intercepts streams from a drainage area of about 32.6 acres and receives in addition the overflow of the Tytam West catchwater, which is at times very considerable. Any overflow from Tytam Reservoir passes into it. Its capacity has not yet been definitely ascertained, but it will amount to about 30 million gallons. The draw-off discharges into the same gauge-basin as the Tytam Reservoir.

The whole of the work was nearly completed at the close of the year, the dam being sufficiently advanced to enable about 20 million gallons to be impounded towards the end of the wet season. This water was utilized for the supply of the City. The bungalow for the caretaker was completed and occupied, being used temporarily for the accommodation of the Overseers employed upon the Bye-wash Reservoir and the works at Tytam Tuk.

50. *Kowloon Water-works.*—These works are being carried out under the supervision of Messrs. DENISON, RAM & GIBBS. Fair progress was made with the various portions of the scheme hitherto undertaken.

- (i.) *Storage Reservoir.*—The excavations for the main dam, which included 10,300 cubic yards of rock and 23,500 cubic yards of earth, were practically completed at the close of the year. As the rock in the foundations, though hard and close, was of a very jointy nature, numerous holes were drilled in it, pipes being inserted into which cement grout was run with the object of filling up any fissures. Large quantities of broken stone, rubble and sand for the concrete hearting and of dressed granite for the facework had been collected ready for use in the construction of the dam. The bungalow for the caretaker was completed with the exception of painting, colour-washing and minor details.
- (ii.) *Main to Storage Reservoir.*—The works executed under this Contract were completed in July. They comprised the laying of about  $3\frac{1}{4}$  miles of 12-inch cast iron main, with connections to the old intakes above Cheung Sha Wan ; the construction of 5 new intakes, making 9 in all ; the erection of a watchman's bungalow at the intakes and the taking up of the 4-inch main laid in 1900.
- (iii.) *Service Reservoir near Kowloon Tong.*—A contract for this work was entered into with Mr. TUNG SHING in February. The reservoir is sunk almost entirely below ground level and is constructed principally of cement concrete with granite pillars and brick arches to support the concrete vaulting which forms the roof. It is circular in form and has a capacity of 2 million gallons. About half the brick arches already mentioned were completed by the end of the year.
- (iv.) *Tunnels, Site of Filter Beds, &c.*—A contract for the items mentioned and for the laying of a mile of 18-inch cast iron pipes was entered into with Mr. WING ON in July. About half of the excavation requiring to be done in levelling the site for the filter beds was completed, the quantity of material removed amounting to 45,000 cubic yards. This was deposited to form a large flat area adjacent to the site of the beds. Instead of tunnelling through a spur of the hills in order to lay the main from the storage reservoir to the filter beds, it was decided to make an open cutting through it which will attain a maximum depth of 110 feet, the length being about 450 feet. The quantity of excavation done in this and in the open cuttings at the two ends of the tunnel through the main range of hills amounted to 8,500 cubic yards. The latter cuttings extend into the hill a distance of 200 feet at the south end and 120 feet at the north end, the remaining distance of about 560 feet having to be tunnelled. Actual tunnelling had progressed for a distance of 20 feet at the south end and 40 feet at the north end, the rock being met with some distance in in the case of the latter. The distance remaining to be done, which promises to be through solid rock, amounts to about 500 feet. Twenty-two tons of 18-inch pipes were delivered on the site of the works and a considerable portion of the track along which they are to be laid was completed.

51. *Disinfecting Station, Kowloon.—Inspector's Quarters at Kowloon.*—A contract for the erection of these buildings on a site at Yaumati was let in October. On setting out their positions on the ground, it was found that some of them would be in too close proximity to a quarry and it was therefore considered advisable to select another site in the neighbourhood. A suitable one was found a little way east of the Pumping Station, some squatters who cultivated a portion of the area having to be compensated. Work was begun at the close of the year.

52. *Extension of Cattle Inspector's Quarters.*—Very unsatisfactory progress was made with this trivial work, great difficulty being experienced in getting the Contractor to carry it out properly. It was however nearly completed, little remaining to be done except plastering, painting and colour-washing.

53. *Public Latrines and Urinals.*—A latrine adjoining No. 3 Police Station, Queen's Road East and containing 38 seats, begun in 1902, was completed, and another at Tai Hang Village, containing 40 seats, was begun and completed during the year. In consequence of complaints received, special arrangements were made for ventilating the former, an electric exhaust fan being installed for the purpose. Urinal accommodation was provided in both of them, besides a room for an attendant. The three urinals referred to in last year's Report as having been delayed from various causes, namely, one in Ice House Street, one in Queen's Road under the Parade Ground, and one on the Praya near the Canton and Macao Steamboat Co.'s pier were completed. The one first mentioned replaced one on Battery Path, whilst the second replaced the iron one which had stood for some years near the north-east corner of the City Hall. Both these places having formed the subject of numerous complaints, were abolished, the one on Battery Path being effaced by taking down some portions of it and building a wall to correspond with the retaining wall on the south side of the path. An iron latrine, containing 6 seats was erected at the village of Stanley in place of an old wooden one.

54. *Praya East Reclamation.*—The negotiations mentioned in last year's Report were brought to a satisfactory issue with the exception of those relating to the boundary between the proposed scheme and the Naval and Military properties. These were still in progress at the close of the year, having proved to be very protracted and troublesome. In consequence of the proposed construction of the electric tramway along Praya East, it was considered advisable to proceed at once with the raising of that roadway to such a level as would admit of the drains and sewers being extended hereafter across the reclamation to the New Praya front, thus obviating the taking up and re-laying of the tramway at an early date. A contract for the work was let in November, a premium being offered for its speedy completion. Very satisfactory progress was made, and by the close of the year the raising was practically completed from Arsenal Street to No. 2 Police Station, whilst a considerable amount had been done on the remaining portion of the road to the eastward. The space to be occupied by the tramway was left about a foot below the finished surface of the road so as to save the filling in and subsequent digging out of material over this area. The expenditure amounted to \$13,107.95, but as it was decided to charge it to an advance account, this amount does not appear in Appendix B. It will be recovered later when the Fund for carrying out the Reclamation Scheme is established.

55. *Tai Po Road.*—After several fruitless attempts to get the Contractor for the construction of the last 5 miles of road to complete his contract, the work was taken out of his hands. Considerable difficulty was experienced in finding another contractor to undertake its completion on reasonable terms and still further difficulty, after arrangements had been made, in getting the work properly carried out. It was however about satisfactorily completed at the close of the year.

56. *City and Hill District Water-works.*—The works carried out under this vote have been practically those recommended on page 17 of Mr. COOPER'S Report of the 9th May, 1896, one or two items having been omitted and a number of additional items executed.

It may be useful to recapitulate the works referred to as recommended by Mr. COOPER. They are :—

- (1.) Improvements of Pokfulam Conduit.
- (2.) New Mains in the City and Repairs to No. 2 Tank.
- (3.) Catchwater, west of Tytam Valley.
- (4.) Reservoir and Catchwater, Wongneichong Gap.
- (5.) Filter Beds and Service Reservoir (Bowen Road).
- (6.) Service Reservoir, Peak.

The total estimated cost being \$260,000.

To these, Mr. COOPER subsequently added "Extension of Mains to North Point and Wongneichong, \$7,000", the sum appearing in the Estimates for 1897 being \$267,000.

The whole of the works enumerated, with the exception of the Improvements of Pokfulam Conduit and the Repairs to No. 2 Tank, have been completed, and the following additional items have been executed :—

- ( i. ) Service Reservoir, Mount Gough.
- ( ii. ) Service Reservoir above Military Hospital site, Bowen Road.
- ( iii. ) Motor at Bowen Road Filter Beds capable of raising water to either of the above Service Reservoirs.
- ( iv. ) Rising Main, 3" diameter, from the above Motor to Mount Gough Service Reservoir, with connection to Peak Mains.
- ( v. ) Main, 6" diameter, connecting Service Reservoir above Military Hospital site with other High Level Service Reservoirs.
- ( vi. ) Two additional Beds at the West Point Filters.
- ( vii.) Additional Rising Main, 3" diameter, from Bonham Road Pumping Station to Peak Service Reservoir.

The total expenditure under the vote has amounted to \$319,285.58, of which a small balance (\$2,645.31) remained to be paid in 1904.

The Service Reservoir on Mount Gough, which is the only work not described in previous Reports, has a capacity of 211,500 gallons. It is constructed of cement concrete, the north wall, which is exposed, being faced externally with rubble masonry. The reservoir is covered with cement concrete arching carried on rolled joists which are in turn supported by brick pillars. The work was completed in November.

With regard to the recommendations which have not yet been carried out, the Pokfulam conduit has been thoroughly cleaned and freed from obstructions throughout its entire length and it is now proposed to reconstruct No. 2 Tank in a slightly different position to the old tank, the cost of the work being defrayed out of another vote.

57. *Widening Conduit Road.*—This work, which was described in last year's Report, was satisfactorily completed in the beginning of the year.

58. *Public Bath-house at Cross Street, Wanchai.*—As the local Brick Company failed to supply the glazed bricks required to complete the bath-house, some slight modifications in the design were adopted in order to avoid further delay, and the building was finally handed over to the Sanitary Board in October. A description of it was given in last year's Report.

59. *Government Offices, Additions and Alterations.*—This work was completed in June and afforded a useful addition to meet the requirements of increased staff. The fireproof room on the upper floor, measuring 74 feet by 18 feet, is being fitted up with cupboards to contain the records of the Colonial Secretary's Office.

60. *Two Temporary Markets.*—Only one of these structures, namely, that adjoining the new Harbour Office, was proceeded with, the Sanitary Board having advised that the site opposite the Sailors' Home was not a convenient one for the purposes of a market. A contract for the one first-mentioned was let in February and the work was completed in July. The structure is of timber throughout, with concrete floor and tiled roof and the various shops and stalls are appropriately fitted up. They comprise 4 vegetable and fruit shops, 2 poultry shops, 9 beef and mutton stalls, 18 pork stalls and 9 fish stalls.

61. *Extension of Wanchai Market.*—This work consisted of erecting a building on the open space hitherto existing on the south side of the Market. The whole of this was taken up, large openings being formed in the south wall of the old building so as to afford a connection with the extension. A contract for the work was let in April and had nearly been completed at the close of the year. The walls of the building are of red brick, plastered externally and pointed internally, the floor being laid with cement concrete and the roof covered with double pan and roll tiling. Accommodation is afforded for 27 stalls in the extension and, by making several alterations, 10 new stalls were added in the old part of the building, thus making 37 additional stalls in all.

62. *City Water-works, Public Fountains.*—As mentioned in last year's Report, the fixing of public fountains under the Water-works Ordinance then in force (No. 29 of 1902) was discontinued by instructions received from the Secretary of State, and in September, 1903, a new Ordinance (No. 16 of 1903) was passed providing for the supply of the principal districts of the City through Rider-mains, so as to enable the water supply to be effectually controlled during periods of scarcity without depriving the inhabitants of the services to their houses. This system of supply will supersede that formerly proposed, namely, the general introduction of public fountains in the streets and the disconnection of the services to the houses.

63. *City Water-works, Peak Supply, &c.*—An indent was forwarded to England for the pumping plant and rising main required for maintaining the supply to the Peak, the requirements having outgrown the capacity of the existing pumping engine and main, which were laid down in 1891. The new engine is to be capable of raising 72,000 gallons per working day of 12 hours, and the rising main, which will be of wrought iron, is to be partly 5" and partly 6" in diameter. In order to overtake the present requirements of the Peak and High Level District, a small pumping engine, which was procured locally, was fitted up temporarily below the West Point Filter Beds and utilized for pumping to the High Levels, thus rendering the motors available for pumping exclusively to the Peak. They had formerly been utilized for pumping to both places. Drawings for the re-construction of No. 2 Tank were in course of preparation.

64. *City Water-works, Tytam Tuk Scheme.*—In order to render available, until some permanent works could be established, the dry-weather flow of the streams, the water of which it is ultimately intended to impound, it was decided to construct a small dam and lay down temporary pumping plant, which would be capable of raising half a million gallons per day from the Tytam Tuk Valley to the gauge basin at the entrance to the Tytam Tunnel. A Worthington engine of the capacity mentioned and suitable boiler were with some difficulty obtained; a small dam immediately below the junction of the three principal branch valleys was constructed, a site for the engine and boiler was formed and a building to contain them and provide quarters for the engine-drivers erected; and a rising main  $1\frac{1}{4}$  miles long was laid with such pipes as were available. All this work was successfully accomplished and the engine started work on the 1st November. Some bursts occurred in the rising main at the outset, but improvements were made in it which have prevented their recurrence. The quantity of water pumped up to the end of the year amounted to  $20\frac{3}{4}$  million gallons. Direct telephonic communication was established with the pumping station and lines from it were in course of construction to the bungalow at Tytam and to the trial works in the estuary.

Two dams for the purpose of gauging the flow of the streams were constructed in accordance with Mr. CHADWICK's recommendations a little way below the dam above mentioned and self-recording apparatus to register the quantity passing over the weirs was ordered from England. The upper weir consists of a large V-notch capable of measuring flows up to fully 40 million gallons per day, whilst the lower one is rectangular and has a width of 40 feet and depth of nearly 4 feet, being intended for measuring the heavier floods which exceed the capacity of the upper one. Useful information in connection with the works to be carried out lower down the valley will be derived from these weirs.

Of the three wells being sunk for the purpose of ascertaining the depth at which a reliable foundation for a dam will be met, No. 1 got so far out of plumb by the time it reached a depth of  $35\frac{1}{2}$  feet below low water that it had to be abandoned.

Well No. 2 was next proceeded with and, after great difficulty, principally on account of skin friction, was successfully sunk by the 17th May to a depth of 46 feet, at which depth rock was reported. The trouble arising from skin friction was overcome by increasing the load on the well until it ultimately reached about 200 tons. Pumping operations within such a confined space and from such depths were also a source of great trouble. The material passed through consisted of clay and silt intermingled with shells and with occasional layers of sand and shells. Just before reaching the rock, a layer of beach boulders about 2 feet in depth, was passed through. The boulders were of varying size, down to shingle, consisted of very hard stone and were densely packed together. The rate at

which water entered the well from the layer of boulders precluded the possibility of pumping it dry in order to admit of an actual inspection of the bottom.

Work was then begun upon Well No. 3 and, after sinking it to a depth of 42 feet through clay silt and sand, the stratum of beach boulders above described was again encountered. Sinking operations were continued, and, after passing through about 10 feet of boulders, sand was again met with and it was not until the well had reached a depth of 58 $\frac{3}{4}$  feet that rock was finally found. Here also it was found impossible to dry the bottom by pumping and the extent and nature of the rock were ascertained by feeling it carefully all over. Pieces were also broken off and compared with the rock above water level at the sides of the bay, and, as the result of this comparison, there seems no room to doubt that rock *in situ* has been reached. Over a small portion of the area (6 feet diameter) covered by the well, the rock dipped away to greater depth. The sinking of this well was completed by the middle of October.

Whilst the operations above-described were in progress, a large number of prickings with Norton tubes (171 in all) were made all over the site of the dam, the result of which was to confirm the information obtained from No. 2 Well and borings formerly taken. They showed the presence of a hard layer, presumed to be rock, at an average depth of about 40 feet over the entire area.

As the information obtained from No. 3 Well cast some doubt upon the reliability of that derived from No. 2 and from the borings, &c., operations were undertaken with a view to sinking the latter to a greater depth, if possible. It was then found that what was formerly supposed to be rock was really a large boulder. The removal of such an obstacle was necessarily a work of some difficulty and it had not been accomplished by the close of the year.

In consequence of the results obtained from No. 3 Well, attention was turned to two sites further inland, where trial pits were made in the hillsides for the purpose of ascertaining whether a satisfactory foundation would be obtainable without excavating to great depths. Arrangements were also made for sinking a well on one of the sites with the same object. Work on the trial pits was completed by the close of the year, but on the well it was delayed until the plant could be released from No. 2.

As it appeared obvious from the results of the trial works that a lengthened period must elapse before a scheme for the low level dam could be definitely prepared, submitted and carried out, it became necessary to consider what could be done by way of a scheme which would enable this interval to be tided over and at the same time would not hamper or interfere in any way with the carrying out of the former.

After full investigation, it was decided that a dam on site No. 4 of Mr. COOPER'S 1896 Report, but of somewhat greater height than he recommended, would afford the most ready and economical means of doing this, and a scheme was accordingly prepared and submitted to Government.

It provided for the construction of the following works :—

- (i.) A dam to impound 194 million gallons.
- (ii.) A pumping station, with the necessary quarters, near the shore of Tytam Bay and below the site of any possible low-level dam, and the erection there of the pumping engines ordered from England (two sets, each capable of delivering 1 $\frac{1}{4}$  million gallons per day).
- (iii.) A new road from the gap through which the Stanley Road passes, above Tytam Tuk, to near Tytam Bye-wash Reservoir (length 1.40 miles).
- (iv.) Access roads to the Pumping Station and to Tytam Gauge Basin and a track for the temporary suction main.
- (v.) A rising main, 18" diameter, from the Pumping Station to Tytam Gauge Basin by way of the new road (length 2.03 miles).
- (vi.) A suction main, 18" diameter, from the small dam erected for the temporary pumping plant to the Pumping Station (length 1.25 miles). The pipes from this main are intended to be subsequently used for duplicating the rising main.

The cost of the entire scheme was estimated to be \$780,000.

It was referred to the Secretary of State for the Colonies at the end of October and had not been definitely sanctioned by the close of the year, but the necessary drawings, &c., to enable a contract to be let were proceeded with and were in a forward state.

65. *Re-construction of Gullies.*—The gullies originally constructed for intercepting foul or storm-water and conveying it into the sewers or drains as the case might be were found to be unsatisfactory in several respects. They consisted of earthenware sumps connected either with the sewers or the drains and covered with removable iron gratings, the bars of which were wide apart. Many of them were untrapped and, in the case of those which were trapped, the sump was frequently full of foul liquid. There was generally one gully to intercept such liquids and convey them into the sewer through a small pipe, whilst another gully beyond it, having a large pipe connected with the storm-water drain, came into action during rainstorms. It frequently happened however that foul liquids were thrown or found their way into the latter and through it to the storm-water drain. The gratings having widely-spaced bars, afforded ready ingress and egress to rats and also admitted comparatively large refuse to the sewers and drains. Being of cast iron and very heavy, they were frequently broken, doubtless through the rough usage they received at the hands of the scavenging coolies who had to remove them in order to clean out the sumps.

The new type of gully was designed to overcome these objections. The grating is closely barred and is fixed and no large refuse can therefore be swept into it, nor can rats pass through it. A trap is provided in every case between the grating and a chamber which is connected with both the sewer and the storm-water drain. The connection with the former is of small size and is at a lower level than that with the latter, which is of large diameter, so that the ordinary dry-weather flow is carried off into the sewer whilst, in the case of rain-storms, the water overflows into the storm-water drain. To enable silt to be removed from the chamber or from the trap, the former is provided with a close manhole cover, which has a locking arrangement requiring a key to open it. The cover is lifted off by means of the key, which can only be withdrawn when it has been re-locked. In many cases, where the fall of the surface-channel admits of it, one chamber serves for two gratings. The total number of gullies constructed was 454, the number of gratings fixed amounting to 717, thus giving 263 gullies with double inlets and 191 with single inlets.

66. *Cattle Depôt Extension.*—A contract for a new shed, capable of containing 240 head of cattle was let in April. The shed was completed and handed over to the Sanitary Board in October. It has been erected on a piece of vacant Crown land adjoining and to the north of the Cattle Depôt with which it has been incorporated by enclosing it with a boundary wall and establishing communication between the two. The shed measures  $142\frac{1}{2}$  feet by 102 feet and is divided into four bays in each of which two rows of cattle are accommodated, a passage being provided down the middle. The walls are of red brick, plastered externally, large openings being left all round for purposes of ventilation. The roof is tiled and has a large overhang to give shade and afford protection from rain. The floor is of lime concrete rendered over with cement and feeding troughs constructed of brick and lime concrete rendered with cement are provided along the walls. Rings are let into the walls for tying up the cattle to.

In consequence of the great increase in the import of cattle, due largely to the demand from the Philippines, it was decided to proceed with the erection of further sheds, and a new contract was entered into in August for the erection of one of the same capacity as that just described, besides numerous lean-to sheds, the latter totalling in all a length of 1,126 feet and being capable of accommodating 281 head of cattle. With the completion of these, there will be room in the Depôt for 1,241 head of cattle as compared with 480 in the old Depôt. The lean-to sheds have been constructed by raising the boundary walls and projecting roofs over the adjacent strips of compound. The roofs, where not resting on the walls, are supported on timber posts let into cast-iron sockets. Good progress has been made with the work, about half of the additional sheds being roofed in at the close of the year.

67. *Post Office, &c.*—As mentioned in last year's Report, competitive designs for this building were invited from Architects in the Colony and in Shanghai and Singapore, on the condition that the author of the design considered first in order of merit would be engaged as Consulting Architect for the work and paid a commission of  $3\frac{3}{4}$  per cent. on the actual cost of it and that a premium of \$1,500 would be paid for the design considered second in order of merit. The limit of cost specified for the building, which was to consist of 3 stories and a basement, was \$500,000. Only three designs were received, two from local firms and one from a firm in Shanghai. In accordance with the terms of the competition, these were referred to the Public Works Committee which, after careful scrutiny, awarded the first premium to Messrs. DENISON, RAM & GIBBS and the second to Messrs. PALMER & TURNER. On the recommendation of the Committee, it was decided to increase the height of the building to 4 stories with a view to providing accommodation for the future growth of the various Departments to be housed in it. The necessary contract drawings, &c., were prepared on this basis by Messrs. DENISON, RAM & GIBBS and a contract for the construction of the foundations was let to Mr. LIN Woo in November. The site was enclosed and excavation was begun by the end of the year.

68. *Bacteriological Institute.*—The staff of the Public Works Department being fully occupied with other work and the provision of a proper institute in which to conduct bacteriological investigations being considered pressing, Messrs. LEIGH & ORANGE were commissioned to prepare a design with a view to tenders being called for. The necessary plans and documents were nearly completed at the end of the year. The site selected forms part of the Taipingshan Resumed Area, being situated immediately west of the junction of Caine Lane and Ladder Street.

69. *Road from Sam Shui Po to Lai Chi Kok.*—It was not found practicable to undertake this work during the year.

70. *Road from Kowloon Inland Lot 652, Hung Hom, to Sixth Street, Yaumati.*—This road will afford a much needed communication between the important villages of Hung Hom and Yaumati. It crosses the swampy ground immediately to the north of Gun Club Hill and will intersect the area which it is intended, when negotiations with the War Department reach such a stage as to admit of it, to lay out as the King's Park. After traversing some rising ground, the road bifurcates, one portion communicating with Sixth Street, Yaumati, and the other with an extension of Robinson Road which it is proposed to construct northwards past the Yaumati Theatre. With a view to future developments, the road is being laid out with a width of 100 feet.

A contract for the work was let in August and substantial progress had been made at the close of the year, about 55,000 cubic yards of material having been excavated where the road passes through cutting and deposited to form the necessary embankment across the low-lying ground. In connection with the work, a large nullah, with concrete invert and masonry side-walls is being constructed along the north side of the road to carry off the storm-water from the adjacent hills. The nullah has a width of 10 feet in its lower and 5 feet in its upper length, the depth throughout being 5 feet. Some 500 feet of it were practically completed.

71. *Public Bath-Houses, Pound Lane, Taipingshan.*—This work comprises a bath-house for men, another for women and a caretaker's quarters, each a separate building. A contract for the work was let in August and good progress was made, the buildings being roofed in by the close of the year.

72. *Resumption of Insanitary Property.*—The small scheme of resumption referred to in paragraph 60 of last year's Report was completed. The scheme is part of one which was recommended by the Sanitary Experts (Messrs. CHADWICK and SIMPSON) and owed its origin to a fire which destroyed or injured a considerable number of houses in the neighbourhood of Ladder Street. The part carried out comprised the resumption of 4 houses entirely and small portions of 2 others and provided for an extension of Lower Lascar Row from Ladder Street to U Hing Lane. Two of the houses had been entirely destroyed by the fire referred to, whilst two others had suffered considerable damage from it. The cost of the resumptions was \$36,500, of which \$14,000 was expended in 1902. A further sum of \$480 was spent in pulling down two of the houses and in obtaining valuations.

Another scheme of considerable extent was undertaken in connection with the block of buildings bounded by Aberdeen Street, Gough Street, Queen's Road and Wellington Street, a block which was specially commented upon by the Sanitary Experts in their Report on the question of the Housing of the Population of Hongkong, dated 14th May, 1902. This scheme included the resumption of 37 houses, in order to enable roads to be opened out in place of the narrow lanes which intersect the block. Action was taken with regard to 25 houses, but negotiations had only been concluded in the case of 2 of them by the close of the year, the amount of compensation paid being \$16,300. In the case of the remaining 23 houses, the Governor in Council having declared that negotiations had failed, formal notice was given under the Crown Lands Resumption Ordinance (No. 32 of 1900) that they were required for a public purpose. Unless the owners come to terms within four months from the date of the notice, the question of compensation will be referred to arbitration, the houses becoming the property of the Government without further delay.

Only one case occurred in which compensation was awarded for the provision, under Section 180 of the Public Health and Buildings Ordinance, of a public scavenging lane in the rear of a house, the amount paid being \$1,650. Several other cases were considered, but, owing to the irregularity in the depth of the neighbouring houses and the configuration of the ground which they occupied, it was decided by the Sanitary Board that it would be impracticable to arrange for a lane which would be of service for scavenging purposes, and the provision of one was therefore waived.

In several other cases, where the property would be injuriously affected by the provision of the full area of open space required by the Ordinance in addition to a lane, a modification of the requirements as regards open space was granted on condition that a lane should be provided without payment of compensation.

73. *Governor's Peak Residence*.—The sum expended under this heading was partly for some small additions and alterations which had to be carried out and partly the balance retained under the contract for the erection of the building until the expiry of the period of maintenance:

74. *Police Station at Tai O.*

*Additional Accommodation at*

*The Sheep and Swine Depôt*.—These two works were completed in 1902, the expenditure appearing in connection with them being only the sums retained during the periods of maintenance in accordance with the terms of the contracts.

75. *Cattle Crematorium and Refuse Destructor*.—This work was completed in February. It comprises a one-cell crematorium for destroying the carcases of animals which die of disease and a one-cell destructor intended to be used for disposing of the rubbish removed from houses where cases of Plague had occurred. A ramp is provided to enable the dead bodies of animals, &c., to be conveyed to the platform from which they are deposited in the furnace. The apparatus is covered with a roof and otherwise enclosed, a large sliding door being used to close the entrance to the platform.

76. *New Derrick at Gap Rock*.—The site of the new derrick is about 15 feet above mean sea level and 170 feet south-west of the site of the old one at a point where a spur of rock with almost perpendicular faces and deep water alongside juts out into the sea.

Under favourable conditions the light-house tender "Stanley" has approached close enough to be discharged by means of the derrick, thus obviating the necessity of transferring the stores destined for the light-house into a small boat. Except in very stormy weather, a landing can always be effected at this point though it is occasionally found advantageous to use the old landing place. The derrick standard is of wrought iron, let into the solid rock; the frame of cast iron, capable of revolving and fitted with single and double purchase gear and the jib, which has a radius of 40 feet, is of wrought iron and tubular in section. For conveyance to Gap Rock, the jib was made in 4 sections, which were bolted together by means of wrought iron collars and brass bolts. The old derrick, which is still useful under certain conditions of wind and weather, was moved a distance of 15 feet seawards.

77. *Rain-storm and Typhoon Damages.*—The necessary repairs of the damages caused by the storms of 1902 were completed. The further expenditure over that incurred in the year mentioned was \$9,852.73, distributed as follows :—

Repairs to Sham Shui Po Harbour Office, and Kow-	
loon City Police Station, .....	\$3,167.87
Repairs to nullah west side of "Clovelly," Peak Road, .....	192.54
Repairs to roads, .....	673.98
Re-construction of retaining wall below Tank Laue, .....	5,818.34

78. *Fence round Plague Hospital.*—This work was completed early in the year. It consisted of the erection of an iron fence, 5' 6" in height, in place of the temporary bamboo fence which formerly enclosed the hospital. Entrance gates were provided where required.

79. *Training Nullahs.*—In addition to a considerable amount of work carried out under the vote "Drainge Works, Miscellaneous," two special votes, amounting to \$14,775, for dealing with nullahs in the Western District of the City, were taken. By the special instructions of His Excellency the Governor, Sir HENRY BLAKE, these sums were devoted to training the streams adjoining the property known as the Richmond Estate, which had gained an unenviable notoriety as a fever-stricken district, and also a stream to the west of the Nethersole Hospital. In all, nullahs measuring 1,977 feet and large channels measuring 357 feet in length were constructed. The nullahs have lime concrete foundations, invert of fine cement concrete, 3" thick, and side walls of rubble masonry pointed in cement and finished with lime concrete coping. They measure 3½ feet in width and have a depth of 5 feet. The gradient varies from 1 in 8 to 1 in 2.

The channels are formed with lime concrete rendered over with cement mortar, ½" thick, and are approximately semi-circular in shape. They measure about 3 feet in width by 2 feet in depth. The ground traversed in nearly all cases was extremely rough, numerous large boulders having to be removed by blasting. Work was begun at the end of February and completed in July. Some damage was occasioned to uncompleted portions of the work by the heavy rain-storms of the 27th-28th June when 14½ inches of rain fell, but otherwise the nullahs and channels successfully withstood the effects of the wet season.

By direction of His Excellency the Officer Administering the Government, the training of another considerable stream in the Western District, adjoining the Bonham Road Pumping Station was undertaken early in December and substantial progress had been made with the work by the close of the year. No payment to the Contractor was however made in consequence of the late period at which work was begun.

80. *Public Mortuary, Extension and Re-construction.*—The mortuary, which is situated in Hill Road, having been found inadequate for present requirements, it was decided to proceed with large extensions and also to take down and re-construct, in accordance with modern ideas, the old building itself. A contract for the work was let in May and, though carried on under considerable difficulties on account of the limited extent and irregular nature of the site and the use of the old building for the accommodation of the bodies of Plague victims, all the new buildings were completed by the end of the year and the reconstruction of the old mortuary was well advanced. The completed buildings will comprise two mortuaries, each of which contains 16 tables, a rat-examination room, measuring 30 feet by 16 feet, 3 small offices, 2 small stores and accommodation for 4 coolies, the whole of the premises being enclosed by a high boundary wall. The buildings are of red brick, plastered externally and internally, except where lined with white glazed tiles, and have roofs of double pan and roll tiling, supported on timber purlins and principals. The walls of the mortuaries and rat-examination room are lined for a height of 6 feet above the floor with white glazed tiles obtained from England and the floors are laid with glazed paving tiles of local manufacture except in the case of the reconstructed mortuary where the floor is rendered with cement mortar, the tiles used in the case of the other buildings not being considered altogether satisfactory. In addition to the ordinary outer doors, the mortuaries and rat-examination room are provided with inner doors of open construction, covered with mosquito-proof wire gauze, and all openings for windows and ventilators are similarly protected. The tables and other fittings for use

in the mortuaries have been obtained from England. The whole of the compound is covered with lime concrete 4 inches thick, finished off with two inches of fine cement concrete and a special drain is provided from the buildings to the harbour, no other drains whatever being connected with it.

81. *Rainstorm Damages.*—The following is a statement of the expenditure incurred in making good the damages caused by the heavy rainstorms, notably those of the 27th-28th June :—

Repairs to roads in the City,.....	\$8,152.56
Do. do. without the City, .....	522.18
Do. do. in Kowloon, .....	5,090.83
Do. do. in New Territory, .....	3,533.14
Do. to nullahs, .....	2,533.17
Do. in the Colonial Cemetery,.....	2,367.89
Cleansing sewers, .....	1,236.36
Re-building wall at Yaumati, .....	668.28

A number of landslips occurred and some bridges were destroyed. The invert of several of the old trained nullahs suffered considerable damage.

82. *Resumption of Land in New Territory.*—It was considered advisable on sanitary grounds to resume some low-lying land in proximity to Starling Inlet Police Station with a view to filling it in and draining it properly. The compensation payable to the various owners was assessed by the Land Court under the powers vested in it by Ordinance, an area of 5·55 acres being resumed. Stones had been fixed in 1902 to define the boundaries of it.

83. *Mast for Weather Signals.*—In order to provide for a system of flag-signalling to indicate the existence of bad weather in the various parts of the China Sea, an additional mast was erected at the Signal Station on Blackhead's Hill, Kowloon. The mast is 82 feet in height, the lower mast being of steel and the top mast and yard of Oregon pine. The yard is 45 feet long. A winch is provided for lowering the topmast and yard during typhoons. The mast was made and erected by the Dock Company before the close of the year.

84. *Tanks in Nos. 9 and 10 Health Districts.*—Consequent upon the experiment conducted by His Excellency, the Governor, Sir HENRY BLAKE, which included the establishment of hot-water tanks and bath-houses in Second and Third Streets, for the purpose of promoting cleanliness among the poorer Chinese and thus mitigating or preventing the spread of Plague among them, the erection of a number of large hot-water tanks was proceeded with in the Health Districts already mentioned. The tanks are constructed of sheet iron,  $\frac{3}{16}$ " thick, and measure 8 feet long by 3 feet wide by 2 feet deep. They are provided with furnaces underneath and are designed to enable articles of furniture—principally bed-boards—to be dipped in them so as to free them of vermin. The sum expended was only a small portion of the total cost, the work not having been undertaken until the latter part of November.

85. *Resumption of Kowloon Inland Lots 1012-1015.*

*Resumption of Strip of Kowloon Inland Lot, 1087.*—These resumptions were effected in order to make provision for the construction of main thoroughfares in Kowloon, which it is intended to lay out with a width of 100 feet. One of these, crossing the King's Park, is already in progress (*vide* paragraph 69) and it is intended to proceed with another leading northwards in continuation of Robinson Road.

86. *Victoria Hospital.*—The Jubilee Committee having found that the funds at their disposal did not admit of the completion of the Hospital and Quarters with all necessary fittings, the Government undertook to make good the deficit, which it was estimated would not exceed \$3,400. Only a portion of this sum was required up to the close of the year, the balance being payable in 1904.

In accordance with the arrangements made when the Jubilee Fund was started in 1897, the buildings, which had reached completion, were formally handed over to Government on the 7th November. The site for the hospital, which is on Barker Road, about 1,100 feet above sea-level, was granted by the

Government and on it, after performing the necessary levelling operations including the construction of retaining walls, the Jubilee Committee erected the buildings, Messrs. PALMER & TURNER being the Architects. The main building consists of two floors containing two general wards (12 beds each), a children's ward (8 beds) and 4 private wards (1, 2, 4 and 5 beds respectively) a total of 44 beds. There are also 2 Sisters' rooms, an office, entrance hall and staircase, an operating theatre and an isolation ward ; the two latter being situated in separate wings connected by covered ways with the rest of the building. A drying-room and the necessary lavatory, scullery and bath-room accommodation are provided. Separated a little way from the main building, but connected with it by a covered way, are the quarters for the staff, consisting of a pair of semi-detached 5-roomed houses, with bath-rooms, kitchens and servants' quarters. The kitchens and servants' quarters connected with the hospital are conveniently arranged in a detached wing in the rear of the main buildings. A mortuary is also provided.

The buildings are of red brick, plastered externally and internally, except in the case of the hospital wards which have plastered dadoes 5 feet high, the walls being cement-pointed above that height. The roofs are of Canton double tiling supported on timber purlins and principals and the verandah floors and floors of lavatories, &c., are of cement concrete supported on iron joists. The wards and rooms have boarded floors of hardwood, those on the upper floor being laid on top of cement concrete arching, supported on steel joists. The entrance hall is laid with encaustic tiles and the main staircase is of teak. All the verandahs are enclosed.

The total expenditure upon the work, including architects' fees, preparing site, &c., was \$118,891.05, the Government contribution amounting to \$3,342.43. The preparation of the site, &c., cost \$7,500 and the superstructure, including the necessary fittings, \$100,994.97, the balance of the expenditure being for architects' fees, supervision, &c.

87. *Jubilee Road.*—In the case of the Jubilee Road also, the Committee had to apply to Government for a small sum (\$524.25) towards defraying the cost. This however was principally due to the construction of a pathway connecting the road from the Peak to Aberdeen with the Jubilee Road, which was undertaken with the approval of the Government in the belief that funds were available. Owing to damage caused to the road itself at a later period by the severe rain-storms of the 27th-28th June, extra expense, which had not been contemplated, was incurred, thus necessitating an appeal to the Government for the amount stated above.

The road and pathway having been fully completed were taken over by the Government in November and will in future be maintained out of the revenues of the Colony.

The road commences at Kennedy Town and traverses the southern slopes of Mount Davis and the adjoining hills to Aberdeen, opening out *en route* a portion of the island which has hitherto been practically inaccessible. It is 5 miles long, has a width of 16 feet and is designed as a carriage road.

Leaving Kennedy Town, it rises for about a mile with gradients of 1 in 20 and 1 in 30 until it attains a height of about 180 feet above sea level ; one of the conditions upon which the Military Authorities withdrew their opposition to its construction being that it should be kept 150 feet above the sea. Passing through a small gap adjoining a site acquired by the Military Authorities for gun practice, it falls at 1 in 30 until it reaches the 150 feet contour, when it is carried level round Sandy Bay to below Bisnee Villa. Another ascent at 1 in 30 is then made to a gap about 250 feet above sea level near Sassoon's Villa, at which point there is a cross road connecting it with the old road from West Point to Aberdeen, which is at a considerably greater altitude. From the gap, it again falls at the same gradient to the 150 feet contour and then runs level through the property of the Missions Etrangères. Crossing the Pokfulam Stream on a bridge of 4 arches, a little further on, it joins the old road to Aberdeen, of which a length of 800 feet has been utilized after improving the gradients. Diverging again at No. 10 Bridge, which has been widened considerably, it falls at 1 in 20 and finally terminates in close proximity to the Aberdeen Docks by joining the old road near sea level, the reason for constructing this portion being the excessively steep gradients of the latter below the bridge mentioned. The road is surfaced throughout with decomposed granite.

There are 10 bridges, all of which are built of granite masonry, with brick arches faced with granite, the spans varying from 10 to 17 feet. All bridges and retaining walls are provided with parapet walls of granite masonry, whilst other parts of the road are protected by iron railings where necessary.

The pathway before referred to commences near the bridge across the main stream on the road from the Peak to Aberdeen and joins the Jubilee Road near the No. 10 Bridge already mentioned.

The work was carried out for the Committee by Messrs. DENISON, RAM & GIBBS, Engineers, Mr. LI A PING being the Contractor. The total expenditure, including all charges, was \$115,272.27, the amount expended under the contract being \$106,146. These figures include the sum of \$524.25, which was paid by Government.

88. *Plague Account.*—Various works, intended for the mitigation of Plague or for operations in dealing with the outbreak of that disease which occurred during the year, were carried out, the cost, which amounted to \$4,812.61 being defrayed from votes under the control of the Sanitary Board. The following were the principal items:—

Fitting up hot-water tanks and bath-houses in connection with His Excellency Sir HENRY BLAKE's experimental blocks, .....	\$2,255
Supplying fuel for ditto,.....	327
Temporary mortuary and other mat-sheds at Yaumati, 1,391	
Mat-shed in Taipingshan for coolies engaged upon Plague work, .....	217
Mat-shed at Central Police Station for men engaged upon Plague work, .....	212

89. *Alterations of Roads.*—The diversion of the Shaukiwan Road past Messrs. BUTTERFIELD & SWIRE's Shipyard at Quarry Bay was sufficiently advanced to admit of turning the traffic over it and closing the old road in December.

The question of carrying out certain alterations and exchanges to enable the traffic to be diverted from the Praya in front of the Kowloon Wharf and Godown Company's premises at Kowloon was re-opened and satisfactory progress was made towards a settlement of the matter, but it had not been finally disposed of by the end of the year.

Arrangements were also made for the surrender to Government of portions of Kowloon Marine Lot 33 and Kowloon Inland Lot 210 for the purpose of widening public roads and the boundaries of a number of lots were re-adjusted to admit of the extension of Robinson Road, Kowloon, northwards.

90. *Surfacing Private Streets and Lanes.*—The amount of work done under this heading was comparatively small, the total expenditure, which was apportioned among the owners of the properties abutting on the streets or lanes dealt with, amounting to \$2,502.26. Practically all the work of this nature throughout the City and in Kowloon has now been satisfactorily completed, though repairs or renewals will, no doubt, become necessary from time to time.

91. *Harlech Road and Road between Wanchai and Wong-nei-chong Gaps.*—Work on these roads was resumed by the Military Authorities and was about completed by the close of the year.

92. *Electric Tramways.*—The laying of the tramway was begun in April and was well advanced by the close of the year. The track is a double one from Kennedy Town to Causeway Bay and a single one beyond the latter place to Shaukiwan. A short length of double track extends from Praya East to the Grand Stand at the Racecourse, Happy Valley. With the exception of a considerable section past the Gas Works, another in Arsenal Street and along the whole extent of Praya East, and a third at Quarry Bay, practically the whole of the track was completed. Some delay in proceeding with the sections mentioned arose through want of rails. Good progress was made with the erection of the Company's Power Station and Car Depôt on the east side of Bowrington Canal. The Company obtained the sanction of the Governor in Council to improve the grading of a portion of the road eastward of No. 5 Bridge at Quarry Bay, and this work was well advanced.

PRAYA RECLAMATION WORKS.

93. *Expenditure.*—The expenditure for the year was \$72,708, as compared with \$110,708 in 1902, and \$91,772 in 1901.

94. *Area rendered available for Building.*—The whole of the remaining building area provided by the reclamation, amounting to 6 acres, became available for allotment; the total area rendered available by the entire scheme being 33 acres.

95. *Work executed.*—The work executed during the year comprised a portion of the earth filling and the formation of the whole of the roadways, including kerbs, channels, gullies and connections, &c. on Section No. 6 West and similar work on Section No. 1 West, a small portion of road-making on the latter being left in abeyance pending the laying of the Electric Tramway tracks. With the exception of this and the laying of sewers in Section No. 1 West, 4, 5, 6 and 7 West, the whole of the Reclamation Scheme has been completed. The laying of the sewers is delayed as long as possible on account of settlement occurring in the newly reclaimed ground.

96. *Re-construction of Government Piers.*—A contract was entered into with Mr. TSANG KENG for building the superstructure of a Boat-slip and Landing opposite the New Harbour Office, and the work was about half done by the close of the year.

97. *Staff and Plant.*—The services of nearly all the outdoor staff were dispensed with and the pontoon crane was laid up in Causeway Bay. The tug "Praya" was employed frequently and the two block barges almost constantly in connection with the trial works for the proposed dam at Tytam Tuk. Ordinary repairs to the plant were effected as required.

98. *General Description of Scheme.*—As the works have now practically reached completion, it may be useful to give a brief account of their origin and progress.

The Praya Reclamation Works were initiated by Sir C. P. CHATER, and have been carried out under the Praya Reclamation Ordinance, No. 16 of 1889. Prior to the passing of this Ordinance, reclamations of limited extent at West Point in front of the Sailors' Home and the Wharf and Godown Company's property (Marine Lots 95 and 105) were sanctioned, but, as these fell within the limits of the main scheme, they were subsequently carried out in conjunction with it. A considerable quantity of rubble stone for the foundations of the sea-wall for these reclamations had been deposited before the main scheme was undertaken and, as the new reclamation projected somewhat further into the harbour, it was necessary to widen the mound so formed in order to bring the wall into alignment.

The reclamation extends from the boundary of the Naval Yard Extension westwards to a point opposite Marine Lot 181, a distance of nearly 2 miles, the total area reclaimed from the sea being approximately 65 acres, made up as follows:—

Praya Reclamation under Ordinance No. 16 of 1889,...	59	acres.
West Point Reclamations, .....	6	"
Total,.....	65	"

Of this area 33.73 acres constitute building land, the remainder being occupied by roads and open spaces. An area of 2.21 acres of land outside the boundaries of the actual reclamation and formerly occupied by streets was rendered available for inclusion with building lots.

Details of the areas, in square feet and in acres, are given in tabular form in Appendix N.

The total length of new Praya Wall is 10,263 feet, made up as follows:—

Praya Reclamation under Ordinance No. 16 of 1889,...	9,198	ft.
West Point Reclamations, .....	1,065	"
Total,.....	10,263	"

In connection with the Praya Reclamation Works the re-construction of Government Piers has also been carried on. So far as this work has progressed, it includes permanent structures for the Nam Pak Hong Pier; Boat-slips opposite the old and new Harbour Offices, Pottinger Street Pier, Blake Pier, Murray Pier, and temporary piers at Ice House Street and Wardley Street. The permanent structures are all of masonry and concrete with the exception of Blake Pier which is constructed almost entirely of iron.

The total expenditure, up to the 31st December, 1903, on the whole of the above-mentioned works, amounted to \$3,362,325.37, made up as follows :—

Praya Reclamation under Ordinance No. 16 of 1889,.....	\$2,895,831.35
West Point Reclamations, .....	221,378.28
Re-construction of Government Piers, .....	245,115.74
Total, .....	<u>\$3,362,325.37</u>

The estimated cost of the Praya Reclamation alone was \$2,942,916.65 ; consequently, when all outstanding accounts are paid, a small balance will probably remain to the credit of the scheme, notwithstanding the great increase in the cost of work during recent years due principally to the drop in exchange from 3/-, at which rate the original estimate was made. The Ordinance provides, however, that the cost per square foot of any particular allotment is not to be fixed at the average cost of the whole Reclamation but at the average cost of the particular Section on which such allotment is situated. It is therefore more than probable that there will be a debit balance on some of the Sections, but it is certain that any such balance will only amount to a small percentage on the original estimated cost. The actual cost in any particular case cannot be exactly stated until the revision of the accounts, now in progress, has been completed, and the necessary adjustments have been made between the various sections or between them and the Re-construction of Government Piers.

<sup>889</sup> The actual construction of the Reclamation was commenced in February, 1900 ; so that about ~~14~~ years have been occupied in its execution. In an out-lying part of the Harbour such a reclamation could have been carried out in less than half the time, as it would have been possible to proceed with the entire work simultaneously, but such an arrangement in the case of the Praya Reclamation, which extends throughout the entire frontage of the principal business part of the City, would have caused intolerable inconvenience and consequently it had to be carried out by degrees. There were also other circumstances which seriously affected the progress of the work.

The original design of the new Praya Wall was prepared when Mr. J. M. PRICE was at the head of the Public Works Department. Just before the commencement of the Reclamation Works he was succeeded by Mr. S. BROWN who made some fundamental alterations in Mr. PRICE's design necessitating the employment of special plant, some of which had to be obtained from England. Although the rubble foundations for the Praya Wall were being proceeded with while the special plant was being obtained, a season's low tides were lost, and it may be said that the works suffered a year's delay, at the outset, through the change in design.

The principal feature of the new design for the wall was the substitution of blocks for granite footings, with the view of using the blocks, in the first instance, as temporary weights for loading and consolidating the rubble foundations. This was a slow and expensive process ; but it was justified by results. The temporary load caused more or less settlement of the foundations throughout their whole extent, and they generally reached a permanent bearing before the superstructure was commenced. In some instances, however, the settlement became so slow, during the later stage of the application of the load, that the blocks were removed before settlement was quite complete, and in building the superstructure an allowance for further settlement was made. In other instances the foundations suddenly collapsed, under the temporary load and, when this happened, the blocks had to be picked up with the aid of divers, the rubble foundations made good, and the temporary load replaced. Had the temporary loading of the foundations been dispensed with, it appears likely that several lengths of wall, probably after being finished to coping level, and backed up with earth, would have collapsed, and had to be rebuilt at great trouble and expense.

Another cause of delay was the period of severe depression and scarcity of money which was experienced in 1892, when doubts arose as to whether the Marine Lot-owners could fulfil their obligations in providing the funds necessary for the completion of the authorised works. The letting of new contracts was postponed until it was decided that the scheme was to be gone on with and carried to completion and, before this decision was arrived at, a season's low tides were lost, causing practically a year's delay.

According to the original programme, the Reclamation was to be commenced simultaneously at both ends, and the works were to be carried on until they met in the middle; but owing to the refusal of the Lot-owners on Section No. 1w to come into the scheme, that portion of the Reclamation was not taken in hand until 1898. In carrying it out, the rubble foundations of the sea wall subsided repeatedly, and caused more trouble and delay than any other equal length of foundations.

Owing however to delays on the part of the Contractor for Section No. 6w, Mr. TSANG KENG, work on section No. 1w, was completed practically simultaneously with it.

Much of the work performed on the Reclamation is invisible, the foundations of the Praya Wall extending down through water and mud to the hard ground. This means that the depth of the wall and rubble mound, from the top of the coping to the bottom of the foundations, varies from 27 to 80 feet. In addition to being extended out to the new Praya Wall, the Storm-Water Drains had to be reconstructed from the old Praya Wall backwards, for distances varying from 100 to 1,450 feet. The aggregate of the areas of the Reclamations outside the old Praya Wall has already been given as 65 acres, but the whole surface of the old Praya had to be raised, and portions of the surfaces of the adjoining streets. Thus the total area dealt with was 80 acres, and the total weight of materials used in the works may be put at something like 3,500,000 tons.

When it is mentioned that the cost of the entire work per square foot of building land has amounted to about \$2 to \$3 and that portions of the land in the western and central districts have realized \$8.78 and \$20.00 per square foot, respectively, there can be no question as to the success of the scheme from a financial point of view. The scheme has also been of great benefit in providing new and wide thoroughfares throughout the principal portion of the City and in affording accommodation for the great development which has occurred in the trade and population of the Colony. In addition to the sum expended upon the Reclamation itself, a large sum, probably about \$4,000,000, has been spent in the erection of buildings on it.

#### STAFF &c.

##### 99. *Leave granted, Appointments, Resignations, &c.*

The following Officers were granted leave exceeding one week's duration:—

Mr. J. R. MUDIE, Executive Engineer,...	12 months.
„ C. H. GALE, Do., ...	12 „
„ D. Woon, Supt. A/cs., Correspondence and Stores, .....	12 „
„ W. J. NEWLAND, Supt. New Territory Survey, .....	5 weeks.
„ B. W. GREY, Land Surveyor,.....	1 month and 26 days.
„ R. H. MUGFORD, Overseer, .....	12 months.
„ M. TAYLOR, Overseer, .....	19 days.
„ A. W. J. SIMMONS, Overseer,.....	3 months.
Miss A. DE SOUZA, Clerk, .....	2 „
Mr. J. M. CRUZ, Tracer,.....	1 month and 1 day.
„ WONG A FAT, Do., .....	1 month and 1 day.
„ A SIN, Gardener, Cemetery, .....	1 month.

I regret to have to record the death of the following Officers :—

- Mr. W. MACGREGOR, Overseer, Kowloon Water-works.  
„ KON KANG, Foreman.  
Mr. MACGREGOR's death was due to a gun accident whilst out shooting.  
He had proved himself a capable and efficient officer and his unfortunate death occurred very inopportune as regards the work upon which he was engaged.

The following officers left the service of the Department :—

- Mr. W. L. TETT, Clerk of Works.  
„ P. T. CRISP, Overseer, Building Ordinance.  
„ J. G. BALDWIN, Overseer.  
„ J. W. DAVIES, „  
„ R. C. WITCHELL, Meter-Reader.  
„ J. C. POWER, „  
„ TAI SHIU LUNG, Clerk.  
„ YEUNG KUN, „  
„ TANG NGOK WAN, Tracer.  
„ TANG YUM HING, „  
„ A WAI, Foreman.  
„ YOUNG SING, Foreman.  
AH FUN, Watchman, (at Government House).  
WONG KOON, Watchman, Garden Road Pumping Station.  
CHAN KAM SANG, „ West Point Filter Beds.  
WONG SING, „ Arbuthnot Road Pumping Station.  
LI KAM, „ Bonham Road.  
CHEONG AH FONG, Telegraph Workman.  
CHUNG HONG, „  
WONG FUNG, Labourer, Pokfulam Reservoir.  
CHEONG KON YAT, Store boy.  
WONG TOP, Coolie at Tytam.  
LAI FOOK, Coolie at Albany Filter Beds.  
YEUNG So, „ „ „  
LEUNG Ki, Office coolie.  
Ah LAI, Survey coolie.  
A CHEONG, „  
LAU FOOK, „  
CHAN WONG CHOI, Survey coolie.  
CHAU FOOK, „  
HÜ CHING, „  
CHOW CHING, Stoker, Bonham Road Pumping Station.

The following appointments were made :—

- Mr. P. N. H. JONES, Assistant Director of Public Works.  
„ H. T. JACKMAN, Executive Engineer.  
„ A. E. WRIGHT, Assistant „  
„ A. J. DARBY, Land Surveyor.  
„ A. C. MILNE, Clerk-of-Works.  
„ W. DOBBS, Overseer, Building Ordinance.  
„ J. HUTCHINGS, „ „  
„ W. T. EDWARDS, „ „  
„ A. A. PARK, „  
„ S. R. BOYD, „  
„ W. NEWTON, „  
„ W. COBB, „  
„ E. F. MARTINEZ, „

Mr. J. C. BOTELHO, Meter-reader.  
„ F. X. FRANCO, „  
„ CHAN SIG U, Clerk.  
„ FUNG HING CHEONG, Clerk.  
„ A. F. ROZARIO, „  
„ S. FERRIER, Custodian, Recreation Ground.  
„ ERNEST AH CHIU, Tracer.  
„ WONG WING IU, „  
„ FUNG LAI HON, „  
„ PANG YUI, Foreman.  
„ YEUNG PO LI, „  
„ CHAN SING, „  
YU SEE, Watchman, Garden Road Pumping Station.  
WUN A FOOK, Telegraph Workman.  
CHUN AH FAT, „  
HO KWONG, Store Boy.  
TSANG CHUN, Office coolie.  
CHAU KUI, Coolie, Government House.  
CHENG YAU, Survey coolie.  
WAH SING, „  
HO SHEANG, „  
TSUNG SOW, „  
CHUNG TAI, „  
NG KWAI, „  
NG KOW, „  
CHEANG YAU, „  
CHEUNG TAK, „  
CHOI SING KAI, Watchman, Pokfulam Reservoir.  
TANG SOW, Watchman, West Point Filter Beds.  
KO LEUNG, „ Arbuthnot Road Pumping Station.  
CHEONG CHUNG, „ Bonham Road „  
WU NGAN, „ Government House.  
LI PO, Labourer, Pokfulam Reservoir.  
SAU Wo, Coolie, Albany Filter Beds.  
FOO ON, „ „  
WONG SEE, Stoker, Bonham Road Pumping Station.

The following Officers entered and left the service of the Department within the year :—

Mr. W. C. COLE, Overseer.  
„ A. SWANSTON, „  
„ JAMES HALLIDAY, „  
„ F. C. HURLEY, Clerk, Water Accounts.  
„ C. F. FOY, Meter-reader.  
„ G. H. LAWRENCE, „  
„ M. W. DAVIES, „  
„ CHAN FUNG TING, Clerk.  
„ L. H. KWONG, „  
„ CHAN SHIU KI, „  
„ H. S. WEST, Custodian, Recreation Ground.  
„ E. SMITH, „  
„ L. CASTRO, Watchman, Pokfulam Reservoir.  
„ CHEN HOI, „ Government House.  
„ CHIU SHI, „ „  
„ CHEONG CHUNG, Watchman, Bonham Road Pumping Station.  
„ WONG CHIU, Coolie at Tytam.  
and 11 Survey coolies.

Mr. H. G. C. FISHER, Assistant Engineer, was promoted to be an Executive Engineer (additional).

100. *Recommendations of Public Works Commission (1902).*—Steps were taken to give effect to the recommendations of the Public Works Commission, with the exception of the appointment of one Assistant Engineer for Maintenance Work and one Overseer for Roads.

The additional Executive Engineer recommended for the supervision of Extraordinary Works was obtained by promoting Mr. FISHER, Assistant Engineer, whilst the one for Drainage and Water-works was appointed in England (Mr. H. T. JACKMAN) and arrived in July. An Assistant Engineer to fill the vacancy caused by Mr. FISHER's promotion was applied for, but had not arrived up to the close of the year.

As mentioned in last year's Report, the Overseer for Telephones was appointed in 1902. The two additional Overseers for Building Ordinance Work arrived in the Colony early in the year. The additional Overseer for Water works also arrived during the course of the year.

The Clerk in connection with Water Accounts was appointed locally.

The other appointments made during the year were for the purpose of filling vacancies in the Staff, some of which occurred in 1902.

In consequence of the passing of the new Public Health and Buildings Ordinance (No. 1 of 1903) and the proposal to carry out Improvement Schemes in the City, it was decided to appoint another Executive Engineer for dealing with such work. An Assistant Engineer and Overseer for carrying into effect the Rider-Main Scheme were also applied for, but none of these officers arrived before the close of the year.

As now constituted, omitting the Assistant Engineer and Overseer for Rider-Mains construction, the executive staff comprises the following :—

- 8 Executive Engineers.
- 8 Assistant Engineers.
- 2 Clerks-of-Works.
- 12 First Class Overseers.
- 12 Second Class Overseers.
- 15 Foremen.

There are also the following, exclusive of the Clerical Staff and minor appointments :—

- 3 Land Surveyors.
- 1 Land Bailiff.
- 6 Tracers.
- 2 Meter-Readers.
- 1 Dredger Master.
- 1 Custodian of the Recreation Ground.

W. CHATHAM, M.I.C.E.,  
*Director of Public Works.*

**Appendix A.****ANNUALLY RECURRENT EXPENDITURE, 1903.**

	Amount in Estimates.	Supple- mentary Votes.	Total Amounts Voted.	Expendi- ture.
Personal Emoluments, including Exchange Compensation, .....	\$ 197,762.50	\$ 6,672.21	\$ 204,434.71	\$ 177,630.55
Other Charges, .....	16,087.00	.....	16,087.00	12,490.57
	\$ 213,849.50	\$ 6,672.21	\$ 220,521.71	\$ 190,121.12
WORKS.				
1. Maintenance of Buildings,.....	\$ 48,000.00	\$ 8,300.00	\$ 56,300.00	\$ 55,819.99
2. " " in New Territory, .....	8,000.00	.....	8,000.00	7,970.43
3. " " Telegraphs, .....	6,000.00	2,700.00	8,700.00	8,917.94
4. " " in New Territory, .....	2,000.00	600.00	2,600.00	2,260.09
5. " " Public Cemetery,.....	3,000.00	2,000.00	5,000.00	4,773.96
6. " " Praya Wall and Piers, .....	3,000.00	6,000.00	9,000.00	7,216.14
7. " " Lighthouses,.....	3,000.00	2,000.00	5,000.00	4,628.46
8. Dredging Foreshores,.....	12,000.00	.....	12,000.00	8,391.63
9. Miscellaneous Works,.....	30,000.00	13,650.00	43,650.00	43,647.23
10. Maintenance of Roads and Bridges in City,.....	50,000.00	5,500.00	55,500.00	55,329.42
11. " Roads and Bridges outside City, .....	25,000.00	2,000.00	27,000.00	26,855.98
12. " Roads and Bridges in Kowloon,.....	15,000.00	2,100.00	17,100.00	16,585.34
13. " Roads and Bridges in New Territory, .....	5,000.00	.....	5,000.00	4,684.55
14. " Sewers, Nullahs, &c., .....	16,000.00	1,500.00	17,500.00	17,293.61
15. Miscellaneous Services, .....	6,000.00	5,000.00	11,000.00	10,085.22
16. Gas Lighting City of Victoria, .....	39,000.00	2,200.00	41,200.00	40,734.20
17. Electric Lighting City of Victoria, .....	23,000.00	.....	23,000.00	22,266.10
18. Gas Lighting Kowloon, .....	8,000.00	.....	8,000.00	7,919.16
19. Maintenance of Public Recreation Ground, .....	3,000.00	.....	3,000.00	2,682.63
20. " Clock Tower,.....	500.00	.....	500.00	200.00
21. Forming and Kerbing Streets, .....	40,000.00	.....	40,000.00	39,347.67
22. Extension of Gas Lighting, .....	1,500.00	300.00	1,800.00	1,637.00
23. Drainage Works Miscellaneous,.....	35,000.00	18,700.00	53,700.00	51,736.76
24. Maintenance of Water Works City and Hill District, .....	24,000.00	13,500.00	37,500.00	39,012.44
25. " " " Kowloon, .....	12,000.00	.....	12,000.00	11,996.53
26. " " " Shaukiwan, .....	1,500.00	.....	1,500.00	31.03
27. " " " Aberdeen,.....	1,000.00	.....	1,000.00	233.41
28. Water Works, Miscellaneous, .....	16,000.00	16,000.00	32,000.00	28,644.20
29. Water Account, (Meters, &c.), .....	45,000.00	.....	45,000.00	8,578.86
30. Reconstructing and Repairing Roofs Govt. Civil Hospital, .....	.....	1,000.00	1,000.00	1,000.00
	\$ 481,500.00	\$ 103,050.00	\$ 584,550.00	\$ 529,579.98

## Appendix B.

## EXTRAORDINARY EXPENDITURE, 1903.

Public Works Extraordinary, 1903.	Amounts in Estimates.	Re-Votes of unexpended Balances 1902 and supplemen- tary Votes.	Total Amounts voted.	Expendi- ture.				
			\$	c.	\$	c.	\$	c.
1. Law Courts, .....	50,000.00	.....	50,000.00		28,666.76			
2. Western Market, .....	30,000.00	.....	30,000.00		7,665.07			
3. Harbour Master's Office, .....	25,000.00	.....	25,000.00		10,656.03			
4. Survey of New Territory,.....	37,000.00	.....	37,000.00		30,906.50			
5. Additional Reservoirs, Tytam Drainage Area, .....	60,000.00	.....	60,000.00		55,022.15			
6. Kowloon Waterworks Gravitation Scheme, .....	250,000.00	.....	250,000.00		110,673.82			
7. Disinfecting Station in Kowloon, .....	6,000.00	.....	6,000.00		.....			
8. Quarters at Do. for Inspector, .....	4,000.00	.....	4,000.00		.....			
9. Extension of Inspectors' Quarters at Kennedy Town, .....	1,000.00	2,000.00	3,000.00		1,832.24			
10. Public Latrines and Urinals, .....	10,000.00	3,500.00	13,500.00		13,499.29			
11. Praya East Reclamation,—Government Share, .....	2,000.00	28,000.00	* 30,000.00		.....			
12. Tai Po Road, .....	8,000.00	.....	8,000.00		3,914.31			
13. City and Hill District Waterworks,.....	9,000.00	5,342.30	14,342.30		14,288.79			
14. Widening Conduit Road, .....	3,000.00	800.00	3,800.00		3,775.05			
15. Public Bath-House, Cross Lane, Wanchai, .....	1,000.00	500.00	1,500.00		1,435.26			
16. Government Offices Extension and Alterations,.....	5,000.00	1,500.00	6,500.00		6,492.47			
17. Two Temporary Markets,—one opposite Sailors' Home and one adjoining new Harbour office, .....	7,000.00	1,000.00	8,000.00		7,840.28			
18. Extension of Wanchai Market, .....	3,000.00	.....	3,000.00		2,354.76			
19. City Waterworks,—Public Fountains, .....	10,000.00	.....	10,000.00		616.42			
20. Do., —Peak Supply and Reconstruction of No. 2 Tank, .....	50,000.00	.....	50,000.00		5,269.18			
21. Do., —Tytam Tuk Scheme, .....	120,000.00	.....	120,000.00		98,006.87			
22. Reconstruction of Gullies, .....	32,000.00	.....	32,000.00		31,961.36			
23. Cattle Depôt Extension, .....	15,000.00	25,000.00	40,000.00		28,254.13			
24. Post Office,.....	20,000.00	.....	20,000.05		6,781.05			
25. Bacteriological Institute, .....	10,000.00	.....	10,000.00		.....			
26. Road from Sam-shui-po to Lai-chi-kok, .....	25,000.00	.....	25,000.00		.....			
27. Road from Kowloon Inland Lot 652 Hunghom, to Sixth St., Yaumati, .....	10,000.00	.....	10,000.00		10,000.00			
28. Public Bath-Houses, Pound Lane, Tai-ping-shan, .....	8,000.00	.....	8,000.00		5,294.89			
29. Resumption of Insanitary Property, .....	100,000.00	.....	100,000.00		40,930.00			
30. Governor's Peak Residence,.....	.....	4,000.00	4,000.00		3,645.67			
31. Police Station, Tai O, .....	.....	300.00	300.00		300.00			
32. Additional Accommodation at the Sheep and Swine Depôt,...	.....	670.00	670.00		567.30			
33. Cattle Crematorium and Refuse Destructor, .....	.....	3,000.00	3,000.00		2,573.86			
34. Derrick on new site, Gap Rock, .....	.....	3,500.00	3,500.00		3,498.91			
35. Rain-storm and Typhoon Damages (1902).....	.....	10,800.00	10,800.00		9,852.73			
36. Fence round Plague Hospital, .....	.....	1,400.00	1,400.00		1,373.14			
37. Training Nullah above Ripon Terrace, .....	.....	2,400.00	2,400.00		2,399.50			
38. Training Nullahs in the Western District, .....	.....	12,375.06	12,375.06		12,375.06			
39. Public Mortuary, Extension and Reconstruction, .....	.....	12,000.00	12,000.00		9,730.20			
40. Rain-storm Damages (1903), .....	.....	24,700.00	24,700.00		24,104.41			
41. Resumption of Land in New Territory, .....	.....	2,288.00	2,288.00		2,287.46			
42. School at Yaumati for Chinese, .....	.....	6,000.00	6,000.00		.....			
43. Mast for Weather Signals, .....	.....	2,150.00	2,150.00		2,054.33			
44. Tanks in Nos. 9 and 10 Health Districts, .....	.....	1,200.00	1,200.00		975.00			
45. Resumption of Kowloon Inland Lots 1,012 to 1,015, .....	.....	24,000.00	24,000.00		24,000.00			
46. Resumption of strip of Kowloon Inland Lot 1,087, .....	.....	2,500.00	2,500.00		2,500.00			
47. Victoria Hospital, .....	.....	2,133.00	2,133.00		1,456.79			
	\$ 911,000.00	183,058.36	1,094,058.36		629,831.04			

\* Expenditure subsequently charged to an Advance Account.

## Appendix C.

### SURVEY OF NEW TERRITORY.

*Statement containing details of the Cadastral Survey including all cultivated areas in the New Territory and the villages shown on the 32" maps.*

DISTRICTS.	No. of Demarcation Districts.	No. of Sheets.	No. of Tracings.	Acres.	No. of Holdings.
Tai Po, .....	37	46	45	2,804.23	29,729
Shataukok, .....	61	62	62	2,416.87	41,235
Shatin, .....	31	31	31	1,362.53	18,375
Sai Kung, .....	115	116	117	3,023.83	49,557
Unlong, Sheung U and Luk Yeuk (16" scale), .....	65	81	78	23,892.60	101,272
Tsui Wan and Tai Lam Chung Sub-Districts, .....	72	74	74	2,658.08	29,911
Lan Tao Island, .....	74	81	82	2,701.58	37,939
Lamma Island, .....	10	12	12	155.09	4,693
Pu Toi Island, .....	1	6	6	33.51	1,140
Cheung Chau Island, .....	1	3	3	110.43	619
Peng Chau Island (near Lan Tao), .....	1	2	2	28.16	249
Mah Wan Island, .....	1	1	1	27.35	218
Peng Chau Island (Mirs Bay), .....	1	2	2	128.66	2,409
Districts 1, 2, 3, 4, 5, 9, and 401 South of Kowloon hills from Lai-chi-kok to Devils Peak, (Resurvey on 32" scale), .....	7	40	40	1,366.29	10,582
Grand Total,.....	477	557	555	40,709.21	327,928

## Appendix D.

CITY AND HILL DISTRICT WATERWORKS, 1903.

*Monthly Consumption and Contents of Reservoirs (gallons).*

MONTH.	POKFULAM.		TYTAM.		WONGNEICHONG.		COLLECTED FROM STREAMS.	TOTAL CONSUMPTION (filtered).	MINT DAM AND BLUE POOL (unfiltered).	GRAND TOTAL.	RAIN- FALL AT OBSER- VATORY. (inches).	REMARKS.
	In Reservoir 1st of Month.	Delivered over gauge.	In Reservoir 1st of Month.	Delivered over gauge.	In Reservoir 1st of Month.	Delivered over gauge.						
January, ....	21,600,000	14,912,000	270,070,000	57,338,000	1,900,000	...	231,000	72,481,000	1,707,000	74,188,000	1,37	
February, ....	10,645,000	12,084,000	222,520,000	46,706,000	2,369,000	...	1,841,000	60,631,000	1,693,000	62,324,000	.21	
March, ....	1,000,000	4,191,000	181,235,000	57,237,000	2,219,000	...	3,358,000	64,786,000	1,736,000	66,522,000	2.65	
April, ....	2,400,000	5,257,000	129,070,000	53,911,000	2,319,000	1,084,000	7,708,000	67,930,000	1,933,000	69,893,000	4.73	
May, ....	9,400,000	17,113,000	104,120,000	52,009,000	4,634,000	21,130,000	21,595,000	111,847,000	1,953,000	113,800,000	13.96	
June, ....	52,000,000	26,740,000	211,900,000	72,790,000	460,000	3,621,000	26,988,000	130,139,000	1,955,000	132,094,000	25.23	
July, ....	66,000,000	28,674,000	387,320,000	64,433,000	29,728,000	...	45,246,000	138,353,000	2,812,000	141,165,000	11.16	
August, ....	65,010,000	31,550,000	384,800,000	81,184,000	30,398,000	...	30,384,000	143,118,000	2,758,000	145,876,000	14.97	
September, ...	64,560,000	17,627,000	396,730,000	64,906,000	30,458,000	...	50,622,000	133,155,000	2,774,000	135,929,000	16.54	
October, ....	64,830,000	25,558,000	407,780,000	84,094,000	30,458,000	...	21,712,000	131,364,000	2,877,000	134,241,000	1.66	
November, ...	54,650,000	22,275,000	369,750,000	75,879,000	24,926,000	10,250,000	11,266,000	119,670,000	1,926,000	121,596,000	1.09	
December, ....	37,915,000	22,721,000	307,725,000	81,567,000	12,816,000	...	7,782,000	112,070,000	1,279,000	113,349,000	.08	
		228,702,000	.....	792,054,000	...	36,085,000	228,733,000	1,285,574,000	25,403,000	1,310,977,000	93.65	

## Appendix E.

CITY AND HILL DISTRICT WATERWORKS, 1903.

*Particulars of Metered and Unmetered Supplies (gallons).*

MONTH.	UNMETERED.			METERED.			FILTERED SUPPLY.			UNFILTERED SUPPLY, METERED.			GRAND TOTAL.		
	CITY.	TRADE.	CITY.	DOMESTIC.	HILL DISTRICT.	TOTAL.									
January,.....	63,744,000		5,701,000	2,246,000		797,000		72,488,000		1,700,000		74,188,000			
February,.....	51,416,000		6,096,000	2,502,000		601,000		60,615,000		1,709,000		62,324,000			
March,.....	54,795,000		7,104,000	2,221,000		704,000		64,824,000		1,698,000		66,522,000			
April,.....	53,862,000		7,491,000	5,472,000		1,115,000		67,949,000		1,953,000		69,893,000			
May,.....	97,596,000		7,481,000	5,594,000		1,176,000		111,847,000		1,953,000		113,800,000			
June,.....	117,188,000		6,489,000	5,306,000		1,156,000		130,139,000		1,955,000		132,094,000			
July,.....	120,738,000		9,759,000	6,489,000		1,367,000		138,353,000		2,812,000		141,165,000			
August,.....	125,169,000		9,782,000	6,509,000		1,658,000		143,118,000		2,758,000		145,876,000			
September,.....	115,380,000		9,767,000	6,481,000		1,527,000		133,155,000		2,774,000		135,929,000			
October,.....	113,010,000		7,351,000	9,232,000		1,771,000		131,364,000		2,877,000		134,241,000			
November,.....	101,727,000		6,752,000	9,654,000		1,537,000		119,670,000		1,926,000		121,596,000			
December,.....	92,966,000		9,423,000	8,403,000		1,278,000		112,070,000		1,279,000		113,349,000			
	1,107,591,000		93,196,000	70,109,000		14,687,000		1,285,583,000		25,394,000		1,310,977,000			

## Appendix F.

CITY AND HILL DISTRICT WATERWORKS, 1903.  
*Water pumped to Hill District and High Levels of the City (gallons).*  
 (Theoretical Displacement of Pumps).

MONTH.	HILL DISTRICT.			HIGH LEVELS OF CITY.						GRAND TOTAL PUMPED.
	Motors.	Engine.	Total.	Motors.	Engine.	Total.	Motors.	Engines.	Total.	
January, .....	1,178,000	1,178,000	339,000	.....	339,000	1,430,000	496,000	1,926,000	2,265,000	3,443,000
February, .....	935,000	935,000	269,000	.....	269,000	1,133,000	370,000	1,503,000	1,772,000	2,707,000
March, .....	804,000	809,000	303,000	.....	303,000	1,119,000	623,000	1,742,000	2,045,000	2,854,000
April, .....	1,476,000	1,476,000	403,000	.....	403,000	1,191,000	636,000	1,827,000	2,230,000	3,706,000
May, .....	1,853,000	1,853,000	873,000	.....	873,000	3,217,000	174,000	3,391,000	4,264,000	6,117,000
June, .....	571,000	2,144,000	2,715,000	860,000	.....	860,000	3,764,000	.....	3,764,000	4,624,000
July, .....	497,000	2,203,000	2,700,000	834,000	.....	834,000	4,086,000	.....	4,086,000	4,920,000
August, .....	558,000	2,310,000	2,868,000	907,000	.....	907,000	3,873,000	.....	3,873,000	4,780,000
September, .....	467,000	2,281,000	2,748,000	912,000	.....	912,000	3,816,000	.....	3,816,000	4,728,000
October, .....	667,000	2,231,000	2,898,000	1,005,000	.....	1,005,000	2,536,000	2,940,000	5,476,000	7,476,000
November, .....	626,000	2,116,000	2,742,000	1,049,000	.....	1,049,000	2,486,000	2,692,000	5,178,000	6,481,000
December, .....	497,000	2,077,000	2,574,000	682,000	.....	682,000	2,246,000	2,533,000	4,779,000	5,461,000
	3,888,000	21,608,000	25,496,000	8,436,000	.....	8,436,000	30,897,000	10,464,000	41,361,000	49,797,000
										75,293,000

## Appendix G.

CITY AND HILL DISTRICT WATERWORKS, 1903.

*Comparative Table showing Water Pumped to Hill District since Supply Commenced (gallons).*  
(Theoretical Displacement of Pumps).

MONTH.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
January,.....	970,000	933,000	1,051,000	1,022,000	1,115,000	735,000	1,669,000	1,641,000	1,881,000	1,566,000	1,178,000	
February,.....	828,000	862,000	882,000	741,000	873,000	1,434,000	1,553,000	1,347,000	1,516,000	814,000	935,000	
March,.....	842,000	950,000	951,000	836,000	1,138,000	993,000	1,730,000	1,362,000	1,574,000	648,000	809,000	
April,.....	726,000	659,000	976,000	992,000	1,093,000	1,373,000	1,542,000	1,613,000	1,751,000	740,000	1,476,000	
May,.....	951,000	826,000	1,091,000	1,210,000	1,316,000	1,387,000	1,769,000	1,654,000	1,933,000	1,101,000	1,853,000	
June,.....	1,152,000	1,175,000	1,140,000	1,176,000	1,409,000	1,553,000	1,957,000	1,939,000	2,001,000	1,796,000	2,715,000	
July,.....	1,206,000	1,324,000	1,252,000	1,397,000	1,560,000	1,618,000	1,972,000	2,127,000	2,041,000	2,175,000	2,700,000	
August,.....	1,257,000	1,257,000	1,386,000	1,393,000	1,462,000	1,498,000	1,808,000	2,157,000	2,323,000	2,451,000	1,920,000	2,868,000
September,.....	1,103,000	1,270,000	1,364,000	1,380,000	1,404,000	1,421,000	1,995,000	2,214,000	2,182,000	2,709,000	1,912,000	2,748,000
October,.....	1,475,000	1,082,000	1,353,000	1,172,000	1,346,000	1,297,000	1,926,000	2,185,000	2,097,000	2,601,000	2,524,060	2,898,000
November,.....	1,239,000	996,000	1,210,000	953,000	1,136,000	1,134,000	1,659,000	1,760,000	2,158,000	2,136,000	1,200,000	2,742,000
December,.....	988,000	981,000	1,194,000	976,000	1,030,000	1,464,000	1,699,000	1,800,000	2,144,000	1,549,000	1,047,000	2,574,000
	6,062,000	12,261,000	13,236,000	13,217,000	13,752,000	15,318,000	18,180,000	22,308,000	22,587,000	24,143,000	17,443,000	25,496,000

## Appendix H.

CITY AND HILL DISTRICT WATERWORKS, 1903.  
 Comparative Table showing Water Pumped to High Levels since Supply Commenced (gallons).  
 (Theoretical Displacement of Pumps),

MONTH.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
January,.....												
2,509,000	1,426,000	1,340,000	962,000	1,358,000	1,478,000	1,951,000	2,221,000	2,433,000	1,700,000	2,265,000		
1,851,000	1,257,000	1,153,000	820,000	1,100,000	1,135,000	1,644,000	1,845,000	1,960,000	1,076,000	1,772,000		
February,.....												
1,084,000	1,301,000	1,372,000	1,009,000	1,352,000	1,404,000	2,091,000	591,000	2,185,000	968,000	2,045,000		
March,.....												
989,000	945,000	1,164,000	1,203,000	1,436,000	1,355,000	1,097,000	2,022,000	2,063,000	824,000	2,230,000		
April,.....												
1,839,000	1,526,000	979,000	1,463,000	1,646,060	1,608,000	1,491,000	1,835,000	1,869,000	1,460,000	4,264,000		
May,.....												
1,745,000	1,376,000	1,226,000	1,391,000	1,473,000	1,502,000	1,451,000	2,015,000	2,727,000	3,598,000	4,624,000		
June,.....												
1,787,000	1,476,000	1,432,000	1,478,000	1,632,000	1,613,000	1,490,000	1,939,000	2,732,000	4,070,000	4,920,000		
July,.....												
3,692,000	1,755,000	1,496,000	1,543,000	1,638,000	1,578,000	1,569,000	2,320,000	3,258,000	3,909,000	4,780,000		
August, .....												
2,845,000	1,703,000	1,584,000	1,585,000	1,449,000	1,600,000	1,701,000	1,704,000	2,173,000	3,065,000	4,342,000	4,728,000	
September,.....												
2,536,000	1,758,000	1,748,000	1,136,000	1,505,000	1,653,000	1,699,000	2,192,000	2,383,000	3,776,000	4,168,000	6,481,000	
October,.....												
2,631,000	1,813,000	1,646,000	1,174,000	1,425,000	1,526,000	1,641,000	1,957,000	2,158,000	1,839,000	2,129,000	6,227,000	
November,.....												
2,304,000	1,668,000	1,619,000	1,216,000	1,394,000	1,431,000	1,722,000	2,135,000	2,190,000	1,032,000	2,206,000	5,461,000	
December,.....												
	14,008,000	20,501,000	17,456,000	15,273,000	15,642,000	17,845,000	18,436,000	20,772,000	23,692,000	28,939,000	30,450,000	49,797,000

**Appendix J.**

KOWLOON WATERWORKS, 1903.

Supplies from Old and New Sources.

*Monthly Consumption (gallons).*

Month.	From old sources (Wells in Fo Pang and Tai Shek Ku Valleys, &c.). (pumped).	From new sources (Cheung Sha Wan Intakes). (by gravitation).	Total.	Remarks.
January, .....	10,559,000	2,689,000	13,248,000	Intakes No. 1 to 6 in use.
February, .....	9,233,000	2,148,000	11,381,000	Do.
March,.....	10,864,000	2,179,000	13,043,000	Do. No. 7 added.
April,.....	8,961,000	2,226,000	11,187,000	Do. No. 8 added.
May, .....	8,719,000	5,719,000	14,438,000	Do. No. 1 to 8 in use.
June, .....	8,439,000	4,876,000	13,315,000	Do. No. 9 added.
July, .....	7,503,000	6,540,000	14,043,000	Do. No. 1 to 9 in use.
August, .....	3,276,000	9,277,000	12,553,000	Do.
September, .....	6,134,000	9,574,000	15,708,000	Do.
October,.....	6,393,000	8,524,000	14,917,000	Do.
November, .....	6,211,000	7,254,000	13,465,000	Do.
December, .....	9,799,000	4,769,000	14,568,000	Do.
Total, .....	96,091,000	65,775,000	161,866,000	

**Appendix K.**

KOWLOON WATERWORKS, 1903.

*Monthly Consumption (gallons).*

Month.	METERED SUPPLY.			Unmetered Supply.	Grand Total.
	Trade.	Domestic.	Total.		
January, .....	982,000	2,395,000	3,377,000	9,871,000	13,248,000
February, .....	575,000	1,711,000	2,286,000	9,095,000	11,381,000
March, .....	688,000	1,502,000	2,190,000	10,853,000	13,043,000
April,.....	855,000	1,804,000	2,659,000	8,528,000	11,187,000
May, .....	760,000	1,871,000	2,631,000	11,807,000	14,438,000
June, .....	850,000	1,835,000	2,685,000	10,630,000	13,315,000
July, .....	1,369,000	2,585,000	3,954,000	10,089,000	14,043,000
August, .....	1,786,000	2,723,000	4,509,000	8,944,000	12,553,000
September, .....	1,206,000	2,470,000	3,676,000	12,032,000	15,708,000
October,.....	1,491,000	2,776,000	4,267,000	10,650,000	14,917,000
November, .....	1,300,000	1,811,000	3,111,000	10,354,000	13,465,000
December,.....	1,177,000	2,115,000	3,292,000	11,276,000	14,568,000
Totals, .....	13,039,000	25,598,000	38,637,000	123,229,000	161,866,000

### Appendix L.

#### ABERDEEN WATERWORKS, 1903.

*Monthly Consumption (gallons).*

Month.	Metered Supply.	Unmetered Supply.	Total.	Remarks.
January, .....	136,000	378,000	514,000	.....
February, .....	137,000	388,000	525,000	.....
March, .....	182,000	475,000	657,000	.....
April, .....	117,000	317,000	434,000	.....
May, .....	76,000	372,000	448,000	.....
June, .....	111,000	478,000	589,000	.....
July, .....	56,000	471,000	527,000	{ Boat Supply, hitherto obtained from Water-works, discontinued.
August, .....	71,000	448,000	519,000	Do.
September, .....	75,000	401,000	496,000	Do.
October, .....	64,000	437,000	501,000	Do.
November, .....	47,000	353,000	400,000	Do.
December, .....	39,000	374,000	413,000	Do.
Total,.....	1,111,000	4,892,000	6,023,000	

### Appendix M.

#### SHAUKIWAN WATERWORKS 1903.

*Monthly Consumption (gallons).*

Month.	Metered Supply.	Unmetered Supply.	Total.
January, .....	16,000	427,000	443,000
February, .....	15,000	402,000	417,000
March, .....	16,000	484,000	500,000
April, .....	22,000	580,000	602,006
May, .....	28,000	611,000	639,000
June, .....	21,000	655,000	676,000
July, .....	19,000	684,000	703,000
August, .....	14,000	637,000	651,000
September,.....	15,000	644,000	659,000
October, .....	11,000	705,000	716,000
November, .....	13,000	701,000	714,000
December, .....	16,000	614,000	630,000
Total,.....	206,000	7,144,000	7,350,000

## Appendix N.

### PRAYA RECLAMATION WORKS.

RECLAMATIONS (1889-1903) BETWEEN THE NAVAL YARD EXTENSION AND MARINE Lot No. 181, SHEKTONGTSUI.

	AREAS FILLED IN OR RAISED (Sq. Ft.)			BUILDING AREAS MADE AVAILABLE (Sq. Ft.)			STREETS AND OTHER OPEN SPACES PROVIDED OR RE-FORMED (Sq. Ft.)		
	Sea Bed.	Old Praya and Approaches.	Total.	Outside Old Praya Wall.	Inside Old Praya Wall.	Total.	Outside Old Praya Wall.	Inside Old Praya Wall.	Total.
Reclamation under Ordinance No. 16 of 1889,	2,579,978	589,612 <sup>(1)</sup>	3,169,590	1,329,215	96,280	1,425,495 <sup>(3)</sup>	1,250,763	493,332	1,744,095
West Point Reclamations,.....	266,622	55,797 <sup>(2)</sup>	322,419	140,135	...	140,135 <sup>(4)</sup>	126,487	55,797	182,284
Total,.....	2,846,600	645,409	3,492,009	1,469,350	96,280	1,565,630	1,377,250	549,129	1,926,379

	AREAS FILLED IN OR RAISED (ACRES).			BUILDING AREAS MADE AVAILABLE (ACRES).			STREETS AND OTHER OPEN SPACES PROVIDED OR RE-FORMED (ACRES).		
	Sea Bed.	Old Praya and Approaches.	Total.	Outside Old Praya Wall.	Inside Old Praya Wall.	Total.	Outside Old Praya Wall.	Inside Old Praya Wall.	Total.
Reclamation under Ordinance No. 16 of 1889,	59·228	13·536 <sup>(1)</sup>	72·764	30·515	2·210	32·725 <sup>(3)</sup>	28·714	11·325	40·039
West Point Reclamations,.....	6·121	1·281 <sup>(2)</sup>	7·402	3·217	...	3·217 <sup>(4)</sup>	2·904	1·281	4·185
Total,.....	65·349	14·817	80·166	33·732	2·210	35·942	31·618	12·606	44·224

(1.) Includes 84,161 Square Feet, or 1.932 Acre, on Old Approaches.

(2.) Includes 6,300 Square Feet, or 0.145 Acre, on Old Approaches.

(3.) Includes Areas accrued to Government, amounting to 251,999 Square Feet, or 5·785 Acres, of which 31,414 Square Feet, or 0.721 Acre, was refused by the Marine Lot Owners who would have been entitled to it on complying with the statutory conditions.

(4.) Includes 64,700 Square Feet, or 1.485 Acre accrued to Government in front of the Sailors' Home.